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EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, FRANCE, September 15, 1907.

THE NATIONAL VETERINARY ASSOCIATION OF ENGLAND.—The great annual meeting of our National Association has taken place. Our issue of October has sent to the world the news of the good work done at Kansas City, and probably this number of the REVIEW will bring again some reminiscences of the veterinary gathering of Sept. 10th, at the New Casino.

We must not, however, remain blind nor ignorant of what veterinarians in other parts of the globe do on the question of professional gatherings, of national veterinary meetings.

It is true that the United States Veterinary Medical Association was the first of its kind in the whole world, and the American Veterinary Medical Association is but the same with a new name, perhaps no better! And if the 44th annual meeting has just closed, we can congratulate ourselves on having shown to the world at large that if the veterinary profession was the youngest in the Western hemisphere, she, however, realized the advantages of such national professional force, before it was dreamed of in the Eastern.

I am not sure that I am going to sin by ignorance, but I believe that, with the exception of Great Britain, a national association of veterinarians does not exist in any other country. England has followed in our steps. The American Veteriary Medical Association has just closed its 44th meeting; the annual meeting of the National Veterinary Association of England was adjourned after two days' meeting in July last.

The meeting was held at Great Yarmouth and opened on the 24th of that month. After a short speech of cordial and sympathetic welcome made by the Mayor of that city, the meeting set to work, namely, listening and discussing a paper on "Intestinal Parasites of the Ox and Sheep," by Prof. Cave, which was followed by one on "Dental Anomalies and Their Significances," by Prof. O. Charnock Bradley. On the second day Prof. Wooldridge read one on "Actinomycosis and Botriomycosis," and finally Mr. Stococks read one on "Sterility in Mares."

There was also, of course, a banquet and a sea trip for the ladies. At each of the readings of the four scientific meetings there was a brisk and interesting discussion carried on in the most harmonious manner, says one of the *comptes rendus*. All the necessary arrangements worked smoothly and without a hitch to the universal satisfaction, and there was only one regret to express, an old grievance! "We should like," says the reporter, "to see the profession as a whole take a more active interest in the National Veterinary Association than has yet been the case. The present congress was well attended, but, like all of its predecessors, fell far short of what might be if all practitioners were of our mind regarding the importance of such gatherings. A society holding meetings all over the country should have a membership roll consisting of half the profession, at least."

This may be much to expect, but anyhow I am sure the A. V. M. A. might demand the same. The meeting at Great Yarmouth had upwards of 200 members and ladies present. I wonder how many we were at Kansas City.

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ARTIFICIAL FECUNDATION IN MAMMALIA.—Since the celebrated experiments of Spallanzani in 1770, where he succeeded in demonstrating practically the possibility of successful artificial fecundation, the subject has not been ignored and the experiments that have been carried out in the two hemispheres

by human gynæcologists and by veterinarians have shown the advantages that could be derived from it from many points of view.

In the last portion of Vol. XII. of the *Archives des Sciences Biologiques,* published by the Imperial Institute of Experimental Medicine of St. Petersburg, Nos. 4 and 5, there is from the pen of Elie Iwanoff, a long article on the subject, entitled "Artificial Fecundation in Mammalia," which is a long review of all that has been done and written on the subject and gives a minute description of all the experiments that he has made in horses, cattle, sheep and other mammalia.

The entire work is divided in two chapters, considering, first, the artificial fecundation with spermatozoids in their natural element, and, second, that with spermatozoids in artificial media. The experiments, in fact, were carried out under these two headings.

The bibliographical review is very complete, and it was a pleasure for me to find among the many experimentators, who have written and experimented and who were living in every country of the world, to find the name of our good friend and esteemed collaborator, Prof. Leonard Pearson, who is mentioned as having successfully realized an artificial fecundation, and having declared that the method was adopted on many farms in America. I was looking in the article of our Russian colleague also for the name of Dr. Knowles, who has written much on the subject of sterility in large females and on artificial fecundation, and who also, I believe, has invented several instruments for the proper operation. I did not find the name of Dr. Knowles, but an acknowledgment of the work done by an American, whose name Elie Iwanoff did not know. Perhaps he meant to refer to the late President of the A. V. M. A.

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To review *in extenso* the long article of the *Archives des Sciences Biologiques* would take more space than this chronicle

allows me, and the consideration of the many experiments made by the author would be imperfect, if shortened or abbreviated. I must satisfy myself in extracting only a few of the important conclusions that follow the careful examination of the work done. Among these conclusions, let me mention only the following:

(1) *In relation to the artificial fecundation by spermatozoids in their natural fluid.*

(a) The sexual excitement of the female, occurring during coit, is not a necessary condition for conception.

(b) The proportion of conceptions resulting from artificial fecundation is superior to the proportion ordinarily observed in natural fecundation.

(c) The duration of the gestation is normally of about 11 months (in mares). Delivery takes place without complications. The products of artificial fecundation are not inferior in structure and development to those from natural coit. No deformity has been observed. Sexual maturity is normal.

(d) In a whole series of cases of anomalies and diseases of the female genital apparatus, artificial fecundation acts as a precious means in the struggle against sterility.

(e) Sperm secreted by the male and collected at the moment of coit can be injected to a whole series of females. 10 c.c. of sperm are sufficient for a conception. From 100 to 300 c.c. of sperm are usually secreted by a horse.

(f) Sperm can also give conception when mixed with solutions of mineral salts (soda) or with blood serum. The products thus obtained do not differ from normal ones.

(g) From experiments made on mares, cows and ewes, success is more certain when freshly collected sperm is injected in the neck of the uterus. Also injections of sperm in the vagina of ewes may be followed by conception.

(h) The most convenient time for fecundation is when the rutting condition is most marked.

(i) Injections with sperm not fresh give many cases of failures; yet it has been demonstrated that it is possible to transport

sperm some distance, providing it is not beyond two hours' journey.

(j) It is not necessary that the sperm should be at the temperature of 36°-37° C.

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(2) *In artificial fecundation by spermatozoids in artificial media.*

(a) The products of secretion of the accessory genital glands can be replaced without danger for the vitality of the spermatozoids, by artificial media, such as solutions of mineral salts, blood serum. Experiments on cows and mares made in that way, show that success is as certain as if natural sperm was used.

(b) The possibility of resorting to artificial media to take the place of the secretions of accessory genital glands increases considerably the field of application of artificial fecundation. Conception has been produced in using spermatozoids taken from the testicles after castration or even after their removal after death.

(c) In the excised testicle spermatozoids live rather a long time, at any rate about one week at least, if the temperature remains at 2° C. Consequently spermatozoids contained in the epididymis can be transported to a distance that may demand 24 hours' traveling.

(d) Artificial fecundation, as far as a method to be applied, must become of great usefulness in the studies of the question of heredity, of the influences upon spermatozoids of the various physical and chemical factors and of the possible anomalies of the products thus obtained.

(e) The urine of horses is very nocive to spermatozoids of that animal.

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THE VASOGEN COMPOUNDS.—The veterinary world here has been stirred lately by the introduction into veterinary therapy of new agents which have given occasion for much writing in

veterinary publications. I am referring to the preparations that go under the name of *Vasogenes.* What are they?

For years, animal fats (lard, suet, etc.), have been displaced in pharmacology by vaseline. By treating with oxygen, under pressure, and at a certain temperature, the heavy oils of Russia, free of their most volatile products, a German chemist, Krever of Cologne, obtained new substances, which can be mixed with water. These products of oxidation combined with ammonia form a lasting emulsion, which can be mixed with water: they are the *Vasogenes,* which have the property to dissolve most of the ordinary drugs and then render their use much easier. They have the same consistency as liquid vaseline, have a brown-yellowish color, a density of about 0.891 and a slight alkaline reaction. They form with water emulsions that are lasting, constant and whitish. They dissolve iodine, iodoform, camphor, chloroform, salicylic acid, icthyol, mercury, bi-iodide, etc.

The preparations thus obtained mix very readily with the liquids of the organism, normal and pathological secretions of the skin, mucous or serous membranes, of the glands, tissues, skin, etc., and are absorbed entirely and readily. They are rapidly absorbed by internal and external teguments and carry with them the medicaments they have been mixed with and render their action more rapid and certain. The urine of an animal, upon which frictions of iodined vasogene has been made, contains iodine one hour after the friction. Simple vasogene has no toxic property and its action is efficacious only when it is incorporated with a drug.

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Several mixtures of vasogenes have already been experimented with and the results made known.

Mr. A. Elvire, in the *Semaine Veterinaire,* mentions the iodined vasogene or *iodosol,* which he has used with success in several cases of sore throat in cattle and young horses. The blemishes left by its application are less serious than those of

mustard poultices. In mange of dogs, it has proven superior to any preparation of sulphur. There is no doubt that in lymphangitis, in tendinous or articular sprains, in windgalls or similar affections where alterative and counter-irritating effects are indicated, iodosol may prove advantageous and of easy and neat application. Skin diseases, granular dermatitis, have been successfully treated with it also.

Pyoctosol is another vasogene, which gives excellent results in the treatment of wounds, preventing or controlling tetanus, septicæmia or suppuration.

Cadosol, or vasogene with oil of cade, is indicated for the treatment of all skin diseases.

Iodhyrgigen, vasogene to the biniodide of mercury, is called to take the place of the red ointment so extensively known and used. All affections and blemishes of the extremities, splints, ringbones, sidebones, exostoses of all kinds, will be treated with it.

Creosotosol, solution of creosote in vasogene, will find its indication for internal use in case of sore throat, laryngitis, bronchitis, pneumonia, etc.

Iodoformosol, vasogene and iodoform, is used externally in solutions for the treatment of all kinds of wounds.

Taken all in all, it is a general revolution that those compounds are introducing into veterinary therapeutics, and to all appearances their advantages are very great. We certainly ought to welcome them, as everything that will improve general practice.

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TALLIANINE IN THE TREATMENT OF TETANUS.—I do not suppose it is very necessary for me to call the attention of our readers to the many advantages that our practice has already derived from the use of Tallianine, but I may be permitted to mention a communication which was made lately by Mr. Cagny, the worthy honorary member of the N. Y. C. V. M. A. in this country. I believe the application of Tallianine in this case is

probably unique in veterinary therapeutics, or, at least, if it is not, all my researches in that direction have been unsuccessful. Here is the case as recorded by the authors:

"We had been called to visit a Percheron mare which was suffering with lockjaw. Previous to the veterinarian being called and with fear of lung troubles being the cause of the symptoms exhibited by the animal, a large mustard poultice had been applied on the loins, and, of course, the irritation that it produced had, so to speak, acted as a stimulant to the manifestations of the nervous affection; the tetanic symptoms were so severe that a fatal termination seemed unavoidable. Nevertheless, the mare was given 30 c.c. of Tallianine at 12 o'clock and 20 c.c. six hours later. The mare was placed in complete obscurity and every three hours she had 10 grammes of chloral in rectal injections. Oats and hay tea at discretion, with sodæ sulphas and bicarbonate. The next day she received three injections of 10 c.c. of Tallianine and also the third and the fourth day, when manifest improvement took place. This was such that the animal could almost be considered as entering upon convalescence, and the administration of Tallianine was suspended. On the sixth day, however, all the bad symptoms had returned and were more severe than ever. 50 c.c. of Tallianine and chloral injections were started again; 20 c.c. were administered the next day, and by degrees the recovery progressed, activated by the administration of Tallianine twice a day in 10 c.c. doses, and later on only once a day. This was kept up until the twenty-third day, when it was stopped, recovery being complete."

Was this case of tetanus one of those that recover of themselves with time, or had Tallianine any effect in the recovery? It is certainly worthy of attention.

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FRAUD WITH TUBERCULIN.—Under the title of "Failures of Tuberculin," I read in the *Semaine Veterinaire* a rather amusing story, which deserves to be retold. It is taken from journals

of the Argentine Republic. The new discovery is due to the police, although it was suspected by the Secretary of Agriculture and the official veterinarians. But still it was not positively found out. The veterinary service could not, anyhow, be accused of neglect, as it has nothing to do with the direct survey of the quarantine, where cattle are kept when disembarked. Inspectors that are not veterinarians have charge of this, and this defectuosity in the organization has been taken advantage of by numerous importers, who have thus shown that tuberculin was no obstacle for their tuberculous animals, and could not stop their importation. Give those animals an accoutumancy as perfect as possible and everything would go on smoothly. This condition was obtained by giving to the animals on board, during their trip across the water from England to America, regular and well calculated doses of tuberculin. Arrived at Buenos Ayres, the animals are kept in quarantine for forty days, watched by inspectors that are not veterinarians. At the expiration of the quarantine the official veterinarian tuberculines them again. If the reproductors come out of the test clear, they are allowed to enter. If they do not, they are sent back or killed. As the animals that come out of the quarantine are sold for enormous prices, it is of the greatest importance that the condition of accoutumancy be such as to allow them to get free from the test of the officials, and to render this condition more certain injections of tuberculin were given at night by those very men, not veterinarians, that were charged to watch them. The police discovered the work done during the night by these men, arrested them, as well as the importers that were in with them.

Very severe measures are to be instituted to correct and prevent the return of such treacherous doings.

I give this statement as I found it, but I doubt that it is very correct, as Prof. Lignieres is too shrewd a man not to have discovered the trick before it could have lasted long.

THE DIAGNOSIS OF GLANDERS BY CUTI-REACTION A FAILURE.—On previous occasions I have referred to the new means of diagnosis that has been brought forward by Prof. Vallée and others in relation to tuberculosis, and I have called the attention of our readers, not only to the cuti-reaction and ophthalmo-reaction by the use of tuberculin, but have also said a few words of what had been tried in the way of applying the same method of diagnosis with mallein in cases of doubtful glanders. Numerous experiments made by Vallée and Martel have already shown how little value can be placed on these methods, when resorted to for the diagnosis of glanders, and the last gentleman says positively that after experimenting on a large number of horses, he has observed that the cuti and the ophthalmo-malleinations do not give any satisfactory results. The reaction may be absent in animals which at post-mortem are found bearers of lesions of glanders. It is true, however, that then the lesions are very limited in their extent. Therefore, these malleinations cannot be depended upon. It is only when the animal is saturated with toxines that the reactions may manifest themselves.

However, the question is agitated, and the *Echo Veterinaire,* of Belgium, relates the observations that were made by two veterinarians, MM. Putzeys and T. Stiennon. These gentlemen made two sets of experiments. One on six horses condemned as suffering with glanders by the ordinary test of mallein. Among these four had also marked clinical symptoms of the disease. In three only was there a slight redness of the conjunctiva, which passed off very rapidly. In three horses out of four the cuti-reaction did not work any better; it failed in all.

The conclusions are that neither of these reactions, the cuti nor the ophthalmic, can be resorted to as a practical method of clinical diagnosis of glanders in horses.

These conclusions will probably settle the question, endorsing as they do, the many that have been made by the French experimenters.

"A COMPARATIVE STUDY OF TUBERCLE BACILLI FROM VARIED SOURCES" is a new pamphlet, Bulletin No. 96, issued by the B. A. I., containing the *comptes rendus* of a series of experiments made by the Chief of the Pathological Division, John R. Mohler, V. M. D., and his assistant, Henry J. Washburn, D. V. S. In recommending its publication, Dr. A. D. Melvin, Chief of the Bureau, states that the main objects of these experiments were to throw "further light upon the question of the intertransmissibility of the human and bovine types of tubercle bacilli." After relating these objects, the authors review the history of similar investigations, beginning with those of Theobald Smith, give the origin of the cultures used in the present investigations, the technique of the experiments, the morphological examinations, the pathogenesis with the tests upon rabbits, white mice, cats, dogs, goats, sheep and cattle, to conclude with the histological examinations of the lesions, the chemical reaction of glycerin-bouillon, and finally the conclusions, some of which present a special general interest.

"(1) While certain peculiarities of growth, morphology, and pathogenesis are observed with a fair degree of constancy in bacilli of human origin, nevertheless these characteristics are not universal, and notable exceptions are observed which would confuse those who would attempt to establish their origin by means of such characteristics.

"(2) A similar degree of constancy in the morphological, biological and pathogenic characters of the bovine bacillus is generally noted, but a certain range of difference has been observed, which, though apparently more limited than for the human bacillus, is nevertheless suggestive of aberrant forms.

"(3) Therefore the assertion, based solely on these facts, that a bacillus has a certain origin, can only be tentative, as bacilli from man have been found which conform in all respects to bacilli obtained from cattle.

"(4) Tubercle bacilli of widely different virulence may be encountered in different cases of bovine, as well as of human tuberculosis.

"(5) There is a certain proportion of cases of human tuberculosis in which may be found tubercle bacilli which are pathogenic for cattle.

"(10) There are human types of bacilli that are similar in morphology and biology, but vary as to their virulence; and, conversely there are bovine bacilli typical as to form and growth, but less pathogenic than those usually observed.

"(12) The question of the transmissibility of tubercle bacilli of bovine origin to man will not be here further discussed from these experiments; but sufficient evidence, in our judgment, has been adduced to warrant the adoption and enforcement of sanitary measures against the use of the meat and the milk of tuberculous animals, and to make it advisable to eliminate all tuberculous cattle from the herd or to sterilize all the milk therefrom. While the greatest amount of tuberculosis in man is undoubtedly caused by its spread from human to human, the frequency of his infection from animals should not be underestimated."

There are six illustrations in this little pamphlet, three of which are colored, and, as is always the case in publications of the Bureau, are typical and excellent. A. L.

EPIZOOTIC LYMPHANGITIS IN PENNSYLVANIA.

Although precautions have been exercised to guard against the introduction of epizoötic lymphangitis into this country it appears that a well-authenticated outbreak has occurred in the western part of Pennsylvania. It has been thoroughly recognized by State Veterinarian Pearson, and cultures made by the State Live Stock Sanitary Board have disclosed its specific organism, the *Saccharomyces farciminosus*—It is expected that at the next meeting of the Pennsylvania State Association an animal affected with this disease will be exhibited to those present.

"RAILROAD DISEASE" OF CATTLE.

In this number of the REVIEW, in the department of "German Review," Dr. J. P. O'Leary presents a translation from a

German contemporary concerning this affection, with differential symptoms from parturient paresis. One of the important points brought out is that Dr. O'Leary has seen the same disease among animals arriving at the Buffalo Stock Yards and we believe he is the first veterinarian in this country to identify it as the " Railroad Disease " of Europe.

MINNESOTA'S SANITARY CONTROL WORK.

An error is reported for the communication in the September REVIEW headed " Minnesota Goes Some Too." Owing to a miscalculation the appropriation for sanitary control work was given as $135,000 for the biennium instead of $170,000, as it should have been. This puts Minnesota ahead of any other state by the neat sum of $35,000 for a biennial period.

DR. OLOF SCHWARZKOPF, writing from the Philippines, contributes to the " Army Veterinary Department " of this number of the REVIEW some of the tribulations of the army veterinarian, and for the December issue he follows up his subject with a suggestion for the establishment of an Army Board at Fort Riley.

THE VETERINARY SCHOOL OF CUBA.—On Sept. 21 and 23 the students of the Veterinary School of Cuba were examined in Havana, it being the close of the first of the three-year courses. The Provisional Governor, Mr. Magoon, has authorized this school to grant degrees in veterinary medicine. The examining board consisted of two members of the faculty and the following members appointed by the Provisional Governor on the recommendation of the Secretary of Public Instruction: President, Dr. N. S. Mayo, Chief of the Department of Animal Industry; Dr. R. Cowley, Dean of the Medical School of the University of Havana, and Dr. H. Valdivielso, Municipal Veterinarian of Havana. The Veterinary School of Havana is doing good work, but it should be incorporated as the School of Veterinary Medicine of the University of Havana. An effort is now being made in that direction at the present time.—(N. S. M.)

ORIGINAL ARTICLES.

TUBERCULOSIS IN HOGS, WITH SPECIAL REFERENCE TO ITS SUPPRESSION.

By John R. Mohler, V. M. D., and Henry J. Washburn, D. V. S., Bureau of Animal Industry, Washington, D. C.

Presented to Forty-fourth Annual Meeting of the American Veterinary Medical Association, at Kansas City, Mo., September 10-13, 1907.

INTRODUCTION.

Tuberculosis in the human family has been lessening materially during the past fifteen years, but reports from the various meat packing centers of the country fail to show the same encouraging condition regarding tuberculosis in hogs during the same space of time. It must be admitted that several localities have recently reported a decrease in the number of tuberculous swine sent from their farms during the past four years, but a review of the collective records of the country at large shows an increase rather than a decrease in the number of affected individuals among our pork-producing animals. Indeed, there is probably no disease of hogs, not even excepting hog cholera, which is causing heavier losses to the hog raiser than tuberculosis, and it is also the cause of the greatest loss to the packers, and of the most anxiety to the veterinary inspector of meats. This disease until recent years has been looked upon as of uncommon occurrence, and only of importance from a meat inspection standpoint. But to-day it must be considered as a general veterinary problem, easy of solution, and which should receive the careful attention of all sanitarians. The swine of this country, January 1, 1906, numbered 52,102,847, and their value at that time was $321,802,511. From these figures one may partially realize the serious menace to the hog-raising industry which is offered by a disease which affects almost 1.5 per cent. of all hogs slaughtered at the abattoirs of this country which have federal inspec-

tion. Reports from European abattoirs show that tuberculosis is far more widely spread among their hogs than among ours, some of the returns showing as high as 5.5 to 7.5 per cent. It is to be hoped that the spread of the disease in this country may be checked, and that concerted action by the stock owners and veterinarians may lead to the complete eradication of this costly affection. The small amount of money required to begin hog raising and the quick returns on the capital invested make this industry an attractive one to the small farmer in most all districts. The hog will make a pound of gain on less food than most live stock and will profitably utilize waste food products of every variety if properly prepared for him. As tuberculosis in this species is chiefly acquired by ingestion the significance of the latter statement is obvious. Tuberculosis of hogs is closely associated with the same malady in cattle. The reason for this is apparent when one considers the close relations of these two species of domestic animals upon nearly every farm. The Bureau of Animal Industry is at present endeavoring to locate the infected farms, or at least the infected localities, and to ascertain the direct cause of its spread in these districts. Owing to the number of hands through which hogs go before reaching the abattoirs this is not an easy proposition, but it can and is being accomplished. Already through co-operation with the state authorities a large number of infected farms have been definitely located, the conditions on the farms have been investigated, the source of the disease determined, and methods for its suppression recommended. In Wisconsin the bureau and state officials have been working with these ends in view. When hogs have been found tubercular and the farm which they came located, the State Veterinarian has been notified, who is empowered by law to quarantine the premises of any farm when he suspects the presence of a contagious disease. He then applies the tuberculin test to the cattle on the farm and otherwise looks for the source of infection. This frequently results in finding the cattle tuberculous. Similar co-operation has recently been taken up with Nebraska, Iowa and Minnesota, and the results are equally en-

couraging. This co-operation with the state is of great value and the results would be of greater magnitude if state legislation could be secured, compelling the tagging of all hogs going to slaughter whereby these animals if found tuberculous could be immediately traced to their point of origin and the source of infection removed. It is evident that the suppression of hog tuberculosis would save the country millions of dollars annually, and when it is realized that there are vast numbers of tuberculous hogs killed in abattoirs having no inspection of any kind, it can be seen that the danger to human life from this source would at the same time be removed.

PREVALENCE.

As previously stated, tuberculosis of hogs is on the increase in certain states, while in others it is decreasing. As an example of the latter may be mentioned Wisconsin, in which the gradual decline of the disease may be attributed to:

(1) The state authorities have been making efforts toward requiring the pasteurization of all skimmed milk which is returned to farmers from the creameries.

(2) The hand separator is being more generally installed, which confines the disease to the single farm whose cows have been attacked.

(3) The earlier age at which Wisconsin hogs are marketed.

(4) The state officials have been doing good work in condemning tuberculous cattle in dairy herds, thus removing from the hogs their greatest source of infection.

The prevalence of this disease among swine must be judged from abattoir statistics entirely. Thus it has been noted from the records kept by the Bureau of Animal Industry that some sections of the country contribute a far greater proportion of diseased animals than others. Hogs from Arkansas, Oklahoma, Indian Territory and Texas are remarkably free from this disease, due probably to the method of caring for them, or rather the lack of caring for them. They are not hampered in feed lots as in certain sections where most of the disease is found, but

are allowed to roam over large areas of pasture and to shift for themselves. When they are found affected the majority of them show very slight lesions. No prolonged feeding is practiced in narrow bounds as in the corn belt. Moreover, there are relatively few dairies in these sections and likewise few tuberculous cattle. On the other hand, the pigs are carried from birth to maturity on some form of pasture, as alfalfa, oats, corn, cowpeas, sorghum, rape and peanuts, all the year around. The pigs of the forest region of Hungary which are pasture-fed are likewise rarely tuberculous, according to Hertwig, and there can be no doubt that swine fed on entirely vegetable food as corn and roughage are proportionately less affected than those fed on dairy products or behind diseased cattle.

A great many hogs in Texas are raised on alfalfa supplemented with corn, and the result is clearly shown in the bureau statistics which indicate that from January 1 to June 30 of this year only one-tenth of one per cent. of over 325,000 hogs slaughtered at Fort Worth showed tuberculous lesions, while only 51 or .015 per cent. were condemned as unfit for food. In striking contrast to this may be given the statistics for the same period of three cities in one of the leading dairy states, which show 3.1 per cent., 3.4 per cent. and 6.4 per cent., respectively, of the hogs slaughtered to be affected with tuberculosis. There are a large number of co-operative creameries in the territory contiguous to these three cities and the raw skimmed milk is taken home by the patrons of their hogs. Samples of separator slime from the two creameries in the town showing the largest number of tuberculous hogs were injected into guinea pigs, and in one instance virulent tubercle bacilli were recovered.

The hog buyers for packing houses are gradually becoming familiar with these conditions from bitter experience and are avoiding certain sections of certain states; and there are at least two eastern packers who will not under any conditions kill hogs from one of the badly infected states. In other localities the packers are beginning to take self-protective measures to have

the feeder of diseased hogs bear the burden, and many of the smaller establishments in the central west are buying hogs subject to post-mortem inspection. This attack on the farmers' purse will probably have more beneficial results in making him fully alive to the seriousness of the situation than any other procedure.

During the first six months of this year there were over 18,000,000 hogs slaughtered under federal inspection, of which about 1.5 per cent. were tuberculous. Of these tuberculous carcasses 74 per cent. were passed for food after tanking the diseased parts, 12 1-2 per cent. were placed in the lard tank after trimming out and tanking the tuberculous parts, and 13 1-2 per cent. were condemned for offal.

In an endeavor to trace out the origin of the infection of tubercular hogs that were arriving at one of the packing plants of Iowa, Rogers, of the Bureau of Animal Industry, for some time carried on an experiment which consisted of tagging the hogs that were hauled to market at that place in wagons before they were removed from the individual farmers' wagons, and later using these tags as means of identification in case tuberculosis was found to exist in any of them at the time of slaughter. In this manner 3,420 hogs were tagged, and on tracing them up to their final disposition it was learned that less than 6 per cent. of the farms were shipping all of the tuberculous live stock to that market, while more than 94 per cent. of the farms were free from the disease. This proportion of non-infected farms should give great encouragement to any efforts that may be made to eradicate the disease from the state. It was further noted that the successive shipments of hogs marketed by certain farmers always contained tuberculous animals, and in at least two instances the entire consignment were condemned for tuberculosis at the time of slaughter.

PATHS OF ENTRANCE OF TUBERCLE BACILLI.

As a result of numerous experiments conducted on hogs it has been quite conclusively shown that hog tuberculosis is an in-

gested disease and that the tubercle bacilli are absorbed almost at the beginning of the alimentary canal. The tonsils of pigs have been examined by several investigators, including ourselves, and tubercle bacilli have been found in the apparently normal tonsillar crypts. From the tonsils to the submaxillary glands is but a very short distance and on a direct line with the lymph current in the lymphatic vessels. This fact, taken into consideration with the infection of the submaxillary glands in over 93 per cent. of all tuberculous hogs, shows that the tonsils play a very important part as the portals of entry of the tubercle bacillus. Again, hogs may be called scavengers, as they eat various substances, rough or smooth, hard or soft, sharp or blunt; and wood, nails, wire, etc., may be taken into the mouth with other food in such a way as to cause sufficient abrasion of the mucous membrane to permit the entrance of the bacillus, and its absorption by the lymph vessels and subsequent deposit in the submaxillary gland, follow. Young pigs at the time of teething are particularly likely to become infected owing to the abrasions of the mucous membrane resulting from the new teeth. Catarrhal conditions of the buccal mucous membranes such as is observed in stomatitis also lower the vitality of the epithelial cells, allowing the entrance of tubercle bacilli. In a few cases the only lesions observed were in the mesenteric glands, which would indicate that the ingested bacilli had safely passed the usual portal of entrance and had been taken up by the lacteals of the intestinal tract and filtered out in the mesenteric lymph glands. Thus Ryder, in charge of the Boston station, has made a careful post-morten examination of 59,460 hogs, of which number 50 carcasses showed lesions of the mesenteric glands only. Of far more frequent occurrence are the lesions of the gastro-hepatic glands and of the bronchial glands. In fact, our study of the lesions of hog tuberculosis shows that next in the order of frequency to the submaxillary gland infection come the combination of the submaxillary with the bronchial glands, then the submaxillary, bronchial and gastro-hepatic glands, next the submaxillary, bronchial, gastro-hepatic glands and the liver. In

a certain small number of cases infection probably occurs directly through the respiratory tract, but these instances are extremely rare. Even more infrequent are those cases of tuberculosis which arise as a result of traumatism, especially the infection of castration wounds by the use of infected instruments or otherwise. One boar has come under our observation whose testicles and mucous membrane of the penis were so markedly tuberculous that the genital tract of the sows covered by him could scarcely have escaped infection.

METHODS OF INFECTION.

The most frequent infection of hogs with tuberculosis occurs no doubt through the digestive tract, and in this infection tuberculosis of cattle is very intimately concerned. In those instances in which a marked increase in the number of tuberculous hogs from a certain locality has been noticed and investigated it has too frequently been found that the hogs in question had been fed upon the by-products of a cream separator or that the carcass of some animal succumbing to tuberculosis had been thrown to the hogs for final disposal.

The certainty with which either of the two conditions mentioned above will lead to the infection of the hogs had not heretofore been appreciated in many quarters. Another source of infection for swine has been shown to exist in the practice of allowing a lot of hogs to run behind a herd of tuberculous cattle, where the tubercle bacilli excreted with the fæces by a tuberculous bovine may readily infect the hogs. Infection of a litter of pigs by a tuberculous sow presents another source of danger. Other methods of infection which may be mentioned and which will be considered separately below consist in the feeding of infected offal from slaughter houses, infected kitchen slops and in the exposure to sputa of tubercular attendants, to tuberculosis of fowls and to infection through castration wounds. These sources of tuberculosis, however, should be considered of minor importance and must not detract attention from the leading factors in the production of the vast majority of cases of hog tuber-

culosis which are unquestionably the milk and fæces of tuberculous cattle. Control these and tuberculosis of swine will at once be greatly reduced.

HOGS AFFECTED BY MILK OF TUBERCULOUS COWS.

Numerous experiments have been conducted by various scientists in many countries which show a great unanimity relative to the ease with which hogs may contract tuberculosis from being fed on milk of tuberculous cows. Thus Gerlach, Zurn, Bollinger, Wesener, Bang, Peuch, Ernst, Pearson, Hills and Rich and others have shown that pigs so fed have become tuberculous in as high as 100 per cent. of the hogs fed. Furthermore, the experiments of the Bureau of Animal Industry have shown similar results. When hogs were fed on tuberculous milk for only three days the post-mortem examination held 107 days later showed that 83.3 per cent. of the hogs had become tuberculous. When hogs received tuberculous milk for 30 days and were allowed to live 50 days later 100 per cent. of the animals had developed generalized tuberculosis. That similar experiences occur under natural conditions on the farm has been proved by tracing certain shipments of tuberculous herds to the farm where they were raised and fattened. In one instance a shipment of 74 hogs showed tuberculosis in 61, and investigation brought out the fact that the swine had been fed on the skimmed milk of a creamery in a nearby town. The separator slime from two of the creameries in this town was obtained for experimental purposes and the inoculation test showed that one of these samples produced tuberculosis in all the guinea pigs inoculated. It is also of interest to know that the hogs slaughtered by the abattoir in this same town for the six months ending June 30, 1907, were tuberculous in 6.4 per cent. of the cases, and in March showed the large percentage of 6.69 per cent.

At the present day centrifugal separators have come into general use in most creameries, and upon many dairy farms, for the removal of the cream from the remaining portions of the milk. During this process the rapid revolutions of the shaft

and discs of the machine thrown down at the base of the shaft a deposit consisting of dirt, hair, manure and other impurities which may have found their way into the milk and, mingling with this mass, bacteria may also be found in great numbers.

The charge has been repeatedly made that tubercle bacilli are scattered by means of the common practice of distributing the separated milk, or the separator refuse, among the farmers who constitute the patrons of the creamery. Such charges as this should not be made unless some evidence can be presented in substantiation; therefore careful search has been made of samples of the separator sediment from a number of creameries located in widely removed dairy regions to see if they really harbored virulent tubercle bacilli.

When first received at the laboratory this material is examined microscopically. Following this examination all samples, whether showing the presence of suspicious bacteria in strained preparations or not, are ejected into guinea pigs where the presence of living tubercle bacilli is soon made manifest by the development of tubercular lesions. As a result of this examination of the products from 15 creameries it has been definitely shown that 5 or 33 1-3 per cent. of the samples examined contained virulent tubercle bacilli.

While there are many creameries which are managed on a mutual benefit system by the dairymen of the region in which they are located, to which no milk containing tubercle bacilli is delivered, and from which the separated milk when divided among the creamery patrons is free from tubercle bacilli, and consequently furnishes a safe and valuable article of food for the calves and pigs to which it is fed, there are, unfortunately, others, as above indicated, which receive milk daily from one or more cows so affected with tuberculosis that they excrete tubercle bacilli, and these find their way in large numbers into the cans of separated milk which are returned to the farmers from these creameries.

In this way a single cow with a tuberculous udder may spread the disease to numbers of hogs and may also infect many farms

in a large section of country that have never been contaminated before with this destructive disease. While this particular means of disseminating tuberculosis could be absolutely prevented by sterilizing the milk, this simple precaution is in the majority of cases not taken.

In one state where hand separators are quite frequently used on the farm a bunch of tuberculous hogs which contained 36 per cent. of tuberculous animals was traced to the farm of the raiser, and the state authorities were notified, who made a tuberculin test of the cattle producing the milk, with the result that about 22 per cent. of them reacted. It will thus be seen that creameries are not alone incriminated but the skimmed milk from the hand separator, if it comes from a tuberculous herd, is equally dangerous, and the buttermilk produced at the creamery from the infected separated cream is likewise capable of carrying tubercle bacilli and infecting the animals which consume it. The one great advantage from a hygienic standpoint which the hand separator has over the public creamery is that the milk from an infected herd is usually fed to the one bunch of hogs while the skimmed milk from the creamery is generally all mixed together in a vat and each farmer takes back with him his pro rata of skimmed milk, which is most likely to be produced by several herds of other people's cattle. Hence the skimmed milk of but one tuberculous herd is liable as a result of this practice to contaminate the entire product of the vat into which it is placed. For this reason it behooves hog raisers to see that their skimmed milk has been properly heated before they feed it, and the state authorities to make such heating by creameries compulsory as a simple and easy way of greatly reducing hog tuberculosis.

INFECTION BY FAECES OF CATTLE AND HOGS.

A very prolific source of infection of hogs with tubercle bacilli and one which closely rivals tuberculous refuse from public creameries is to be found in the fæces of tuberculous cattle. It is a very common practice to allow hogs to accompany cattle about the feed lot, and while doing this they thoroughly work

over the fæces, thus saving whatever portions of food have passed undigested through the alimentary tract of the bovine. In herds that are healthy this manner of feeding is to be commended because of the economy, but wherever there are tuberculous animals among the cattle the danger of passing the infection on to the hogs by means of the fæces becomes very great.

In a series of investigations which were carried on by the bureau it was found that the fæces of tuberculous cattle are often loaded with tubercle bacilli. To test their virulence tuberculin-tested hogs were placed in isolated pens where a few shovelfuls of such fæces were thrown daily while the hogs were fed upon other food which was free from tubercle bacilli. The result was the infection of 25 per cent. of the first lot of hogs and 100 per cent. of the second lot that were exposed. The tuberculous condition of the cattle was only shown by the tuberculin test, as they were apparently healthy, having no cough or any visible indications of disease. A somewhat similar experiment was performed by exposing tuberculin tested hogs solely to the fæces of healthy cattle that were swallowing small quantities of tubercle culture in their drinking water. The exposure lasted 81 days, with the result that 75 per cent. of the first lot and 100 per cent. of the second lot of hogs contracted tuberculosis. In a recent examination at the Bureau Experiment Station of the manure passed by 12 cows just purchased from dairy farms in the District of Columbia and affected with tuberculosis to an extent only demonstrable by the tuberculin test, tubercle bacilli were found by Schroeder in over 41 per cent. of the cases, both by microscopic examination and by guinea pig inoculation. The result of this test led to the suggestion that tuberculous hogs might equally well serve as distributors of tubercle bacilli by means of their fæces, and an experiment is now being carried out in which a litter of healthy pigs is being exposed to possible infection by being brought in contact with the fæces of hogs that are known to be affected with lesions of tuberculosis. All other possible sources of infection have been excluded and development of

tuberculosis by any of the pigs will point positively to the fæces as the carrier of the tubercular infection.

Only recently a probable instance of infection of hogs by cattle fæces came under observation. Of 34 hogs which were marketed by Mr. H—— 23 were found diseased, and upon investigation it was ascertained that the owner had a herd of dairy cows, the stable manure from which was thrown into the hog yard. The hogs were given no milk, nor were they permitted to mingle with the cattle, but were pastured and fed on corn and what they could gather from the cow manure. In fact the latter form of exposure was the only plausible explanation of infection, and this was later accepted when the tuberculin test of the herd revealed 19 out of the 27 cows diseased, which test was confirmed when the cattle were slaughtered and found to be tuberculous, some in an advanced stage.

HOGS FED ON TUBERCULOUS CARCASSES OR SLAUGHTER-HOUSE OFFAL.

It is an all too prevalent custom in some sections for hog raisers to buy up all carcasses of animals that have died from various unknown causes and feed them to their hogs. This is a fertile source of infection with parasites and with whatever infectious disease the animal may perchance have died. Several instances of tuberculous hogs being traced to such an exposure have been found. Probably the most important case occurred in an eastern station where 31 out of 40 hogs were condemned for tuberculosis. When these animals were traced back to the raiser it was found that he was running a large dairy and that a dairy inspector had by clinical examination condemned one his cows for advanced tuberculosis. The owner in order to save something, as he stated, from the carcass, hauled it out to the hog pasture and allowed them to consume it with the above disastrous results. Previous hogs that had been raised by him had never been condemned, and the bunch in question were running on a large pasture separated from cattle and apparently had no other

opportunity to become infected than by the condemned tuberculous dairy cow.

An equally dangerous source of infection is likewise observed in the methods which obtain among some of the small country slaughter houses. It is not unusual for these houses to get rid of their blood, intestines, visceræ and other inedible parts by feeding them to hogs, a herd of which is usually kept on the premises. This custom is pregnant with danger and is another fertile source for perpetuating the infectious principle of various infectious and parasitic diseases, and particularly a dietetic disease like tuberculosis. The feeding of offal, etc., to hogs on the premises of abattoirs having government inspection is not permitted by the Federal Meat Inspection Regulations, and other state and municipal regulations should be equally stringent on this feature, as has been done in the meat regulations of the City of Philadelphia. We have no records of such hogs being tuberculous as they are killed by the butcher on the premises on which they are fed. As these houses have no inspection the carcasses are marketed as healthy.

INFECTION FROM DISEASED BROOD SOWS.

A case of this character was thoroughly investigated by Clancy, of the Bureau of Animal Industry, which is full of instructive features.

It had been noticed that a certain shipper of hogs to the East St. Louis market occasionally sent in a load containing many tuberculous animals, and close inquiry and consultation of shipping records showed that these loads were mainly composed of hogs from one and the same farm. An inspector was consequently detailed to visit this place and to uncover, if possible, the source of such wholesale infection. In his report to Washington he writes:

"But four cows are milked and no part of their milk is fed to pigs. The brood sows are kept in several widely separated lots on different parts of the farm and they are moved about frequently.

"A physical examination, it would seem, is of minor importance when we consider the evidence which points conclusively to the fact that several of the brood sows must surely be tuberculous." He next states that 28 tuberculous hogs were shipped from this farm in May, 1902. In July, 1904, 11 affected hogs left the farm, and in September of the same year 14 others followed and were condemned by federal inspection at the abattoirs. In 1905 27 tuberculous swine were shipped from this farm, making a total of 80 animals which had contracted tuberculosis on this farm within a period of four years. It was further shown that a year or two previous to the first appearance of tuberculosis among the hogs of this farm the owner had purchased some imported cattle from a neighbor who was engaged in importing cattle from England. Some of the cattle from the importer's farm were slaughtered at about this time and were found to be so badly infected with tuberculosis that the carcasses were totally destroyed. Tuberculosis was conveyed from the importer's farm to the farm under investigation, and after a time made itself manifest among the cattle on the place with the result that one of them died. Her carcass was hauled out to the feed lot and turned over to the hogs. After this date constant trouble had been experienced through the development of tuberculosis by the hogs of this field.

We must infer that the brood sows on this farm became affected through eating the tuberculous carcass of this cow, and that retaining the disease, they continued to infect their offspring for several seasons following. The sows were retained from year to year while their litters were fattened and sent to market, and it was in these young animals that tuberculosis was found to have developed to such remarkable proportions.

M'Fadyean reports that a litter of young sucking pigs was referred to him for investigation because they were unthrifty, dull and purging. The remaining swine of the farm, consisting of a boar, three sows and another litter of young pigs, all appeared to be perfectly healthy. The pigs were about seven weeks old

at the time of the examination, and in spite of this early age all of them were found to be affected with generalized tuberculosis. No report of the sow which produced these pigs could be obtained other than the statement that she appeared to be quite healthy with no evidence of mammary tuberculosis. M'Fadyean considers it more than probable that a post-mortem examination of this brood sow would have revealed either tuberculosis of the generative organs or of the mammary glands. The first pig examined led M'Fadyean to decide that infection must have occurred previous to birth, while the lesions of the other two indicated a later infection by way of the digestive canal.

In an experiment conducted by the bureau a sow was artificially infected by inserting a long hypodermic needle under the subcutaneous tissues of the mammae parallel with the skin, and in withdrawing a few drops of tubercle culture were allowed to flow gradually from the point of the needle. The litter of pigs born to this sow all became tuberculous, although the latter on post-mortem examination showed only six small subcutaneous abscesses the size of hazel nuts. Another experiment is now under way with a tuberculous sow having a litter of eight pigs; four of the latter are placed in a pen by themselves into which is thrown the fæces of the mother. Precautions have been taken to prevent any other source of infection. The remaining four pigs are likewise kept in a separate pen into which the sow is permitted to go only for the purpose of allowing the pigs to suckle. This experiment, which is intended to ascertain the danger of the fæces and the likelihood of contracting tuberculosis from the milk of an extensively infected sow has not as yet been completed.

INFECTION BY TUBERCULAR ATTENDANTS.

Attendants and caretakers who feed and care for the hogs should be free from tuberculosis since hogs are susceptible to human tuberculosis, as has already been stated. Bang records the appearance of tuberculosis among hogs on a farm where the disease had never been seen before, which resulted from tuber-

culous attendants who were in the habit of spitting in the hogs' food and about the premises.

Judging from his comparative tests of human and bovine tubercle bacilli Dinwiddie reached the conclusion that pigs "are susceptible to infection with both bovine and human tubercle," and to judge from this test "bovine tubercle is no more active for these animals than human sputum. The kind of pathological changes induced in the two cases are identical. The liability to generalization of the disease in pigs, a feature which has been noticed by other orservers, is noticeable also in these inoculation experiments."

In a later review of these tests Dinwiddie states "pigs were found to be readily infected and prone to suffer from a generalized disease by inoculation and feeding with both varieties of tubercle or tubercle bacilli in cultures."

The British Royal Commission on Tuberculosis have also shown that hogs are susceptible to human tuberculosis. This commission considers the power of resistance of hogs to the human tubercle bacillus to be considerably less than that possessed by cattle.

Knese reports the infection and loss of an entire litter of 3-months-old pigs consisting of 11 animals. These pigs had been bred upon the premises from healthy stock and all possible sources of infection could be eliminated save that of sputum from a tuberculous daughter of the family, who was very sick with tuberculosis of the lungs during the entire summer and who died from the ravages of this disease in the fall. During the progress of the disease the young woman coughed badly and raised large amounts of expectoration which was collected in a dish at the bedside. This dish was emptied into the yard each morning, then washed out, and the wash-water was likewise thrown out into the door-yard. The small pigs had liberty to run about in the door-yard each day and undoubtedly became infected through contact with the human tuberculous sputum which was so freely placed within their reach.

In a recent conversation with Ryder, in charge of the Boston station, he informed us that out of a lot of 76 hogs which had been fed upon swill gathered from some of the hotels of Boston, 37 were found to be tuberculous at the time of slaughter. It is, of course, impossible to state positively that these animals were any of them infected through infectious material gained from tuberculous people at these hotels, but because of the possibility of such contamination the case is mentioned. It should be stated in this connection that the cattle on this farm were healthy, having been frequently tested in the last three or four years, and there was no other apparent source of infection than the hotel swill.

INFECTION FROM TUBERCULOUS FOWLS AND CASTRATION WOUNDS.

The association of pigs and fowls has suggested the possibility in European countries that in some cases tuberculosis of hogs may result from exposure to chickens affected with tuberculosis. As avian tuberculosis is extremely rare in this country little importance should be attached to this method of infection, although the finding of avian tubercle bacilli in hog tissues by Weber and Bofinger indicates that hogs are susceptible to this form of the disease.

The danger of infection of the scrotum at the time of castrating hogs through the contaminated knife of the operator or otherwise has been reported by Meyer. This method of becoming diseased is likewise of such rare occurrence that to mention it is sufficient for our purpose.

SYMPTOMS.

Few hogs ever show by outward symptoms that they are affected with tuberculosis. In fact, the hogs that disclose tuberculosis at the time of slaughter are frequently the finest appearing animals in the drove when they are brought to the abattoir. Should indications of tuberculosis be present they will usually consist of a general appearance of unthriftiness, which might re-

sult from other diseases and therefore does not afford any very definite indication that tuberculosis is present.

Where the disease progresses to an advanced stage of generalization various symptoms may appear. Abdominal tuberculosis is frequently accompanied by general disturbance of the digestive functions and constipation or diarrhea may be shown.

Advanced pulmonary tuberculosis will be shown by a persistent dry, harsh cough, and by acceleration in breathing especially on exercise. This cough is similar to that caused by lungworms and cannot be differentiated from it.

Interference with both respiratory and digestive functions may be shown in case the disease is widely generalized, and the systemic alterations will be shown by progressive emaciation and weakness. Localization of the disease in bones or joints may produce lameness and other visible indications but these are comparatively very rare. In those cases where the disease is not characterized by prominent symptoms but where the animals are suspected of having the disease the tuberculin test is recommended. This makes it possible to slaughter the reacting animals in the early stages of the disease and thus obtain some remuneration for the carcasses and at the same time get rid of the infection. This is especially important in holding over brood sows as our experiments have indicated that both the milk and the fæces of these sows may contain tubercle bacilli and thus infect the young pigs.

TUBERCULIN TEST.

In reviewing the questions of detection and of eradication of tuberculosis in hogs it is noticeable at once that there are but few recorded instances in which reliable tuberculin tests have been made. This may be due to the fact that the temperatures of hogs are subject to rapid changes under conditions which would not cause noticeable variations with cattle. These alterations of temperature in individual hogs are so great within short spaces of time, and from apparently insignificant causes, that it seems at first glance that no change caused by the injection of

tuberculin could ever, guarded from outside influences, be sufficient to permit one to reach any definite conclusion as to the presence or absence of tuberculosis.

In the experiments of Schroeder and Mohler, of the Bureau of Animal Industry, recorded in Bull. No. 88, it was found desirable to keep the hogs as quiet as possible during the test, it having been shown that excitement affects the temperatures of the hogs very quickly. Each hog was therefore placed in a rectangular crate about twelve hours before the first temperature was taken, and remained in this confinement until the tuberculin test was completed. The crates, while large enough to permit the hogs to get up and down easily, were still close enough to prevent their turning around, or moving backward and forward to such an extent as to interfere with the insertion of the thermometers. Crates that are made 4 feet long, 1 ft. 2 in. wide and 2 ft. high, inside measurement, have proven entirely satisfactory in restraining hogs weighing from 50 to 150 pounds. Unless use is made of crates or of some other satisfactory means of restraint it is difficult, if not impossible, to obtain trustworthy temperatures of hogs.

The dose of tuberculin used was estimated on a basis of ½ c. c. for each hundredweight or fraction thereof of the weight of the animals tested. For instance, a pig weighing 75 or 100 pounds, would receive ½ c. c. of tuberculin, while one weighing 150 or 200 pounds would receive 1 c. c. The injections were made directly under the skin at the inner surface of the thigh, and in no instance were any harmful results noted following the puncture.

For a practical tuberculin test it has been found sufficient to have the temperature of the hogs taken every two hours from 8 a. m. to 6 p. m., inclusive, on the day of injection; and at the same hours on the day following, with the tuberculin injection made at 10 p. m. on the first day. The temperature before injection should be taken as frequently as after injection and at corresponding hours because of the very erratic character of the

temperature of hogs and because of the slight circumstances that may inadvertently be the cause of marked variations. It should especially be borne in mind that the value of the results obtained depends entirely upon keeping the hogs absolutely quiet during the whole of the test, and this point may be more readily gained if the animals are kept in their crates for 12 hours at least before the first temperature is taken.

In reaching a decision as to the presence of tuberculosis in a hog, as shown by the temperature readings, it is somewhat unsafe to base a condemnation upon the comparison of the maximum reading before injection with the maximum of the day following, but by averaging the temperatures for the two days during which they have been taken one is enabled to reach very satisfactory conclusions by comparing these averages. It is essential that the temperatures should be taken at corresponding hours on each day of the test if results are to be determined by means of averages. By this method it was found in a test experiment with 68 hogs that only two failures (less than 3 per cent.) occurred. In these tests no hog was condemned as tuberculous until it had shown a persistent average elevation of temperature of one degree throughout the second day. In the two failures mentioned one tuberculous hog failed to react and another animal gave a reaction, but at post-mortem examination no tubercular lesions could be found.

A report has been received from Dr. Luckey, State Veterinarian of Missouri, which shows that hogs may be tested satisfactorily and to good advantage with tuberculin if handled quietly and kept so closely confined that no chasing or driving will be necessary at the time of taking temperatures.

LESIONS.

The vitality of hogs or their powers of resistance to disease are necessarily lowered by the unnatural conditions which frequently obtain in hog raising, namely, the forced feeding for fattening and the small feeding pens in vogue in certain districts. When the enormous growth of a hog is considered, when it is

realized that in the short space of 8 or 10 months a hog's development is frequently 250 to 300 pounds, a proportionate increase of weight unknown to any other species of domestic animals, the great metabolic changes which must necessarily occur can be appreciated. And such rapid development is very likely to take place at the expense of the disease-resisting powers of the animal. When tuberculosis results the lesions usually observed are discrete and of chronic type, at times retrogressive and at other times slowly progressive, as manifested by calcareous deposits and fibrous encapsulation. It is not infrequent, however, that a more extensive and spreading disease is seen and the lesions indicate a severe infection and rapid generalization of the bacilli, which in these animals may quickly follow the initial attack. And whether the disease assumes an acute, subacute or chronic type, tuberculous growths may soon be found attacking lymph glands in widely separated parts of the body.

As the disease is essentially produced by ingestion the glands and tissues associated with the digestive tract are the most frequent seats of infection. Indeed the superior cervical glands (in almost all cases the submaxillary gland) are nearly always affected, as at the post-mortem examinations held by bureau inspectors over a consecutive period on 120,000 tuberculous hog carcasses, 93.3 per cent. were found to contain lesions in these glands. The large tonsils and the large number of lymph sinuses in the lymph glands probably account for this great frequency. Next in importance are the bronchial glands, of which 27.2 per cent. were diseased, while the gastro-hepatic chain of glands was involved in 21.6 per cent. of the cases. In all these cases the lesions may involve the entire lmyph structure, or only the central or several irregular points, and may be either caseous, calcareous or caseo-calcareous. The mesenteric lmyph glands showed lesions in 18.1 per cent. of the carcasses examined. The liver was affected in 9.2 per cent. of the cases and showed either yellowish miliary foci which were caseous and scattered not only on the surface but also in the parenchyma, or the larger irregular nodules varying from a hemp seed to a shellbark in size. They

are at times quite fibrous in consistency and may contain a caseous centre or calcification may occur as the disease advances and the alterations become more considerable. The lungs are the next tissue to be most frequently affected as is represented by 7.0 per cent. of the carcasses above recorded. The morbid anatomy of the lungs in this disease simulates that observed in human tuberculosis more than in cattle tuberculosis. In fact, the disease bears many points of similarity to infantile tuberculosis in the human. There may be tuberculous pneumonia, involving large areas of the lungs, causing collapse of the marginal portion. There may be irregular sized greyish or yellowish areas of caseation as is so often seen in cattle, but not infrequently there are observed large numbers of miliary grey or translucent foci showing evidence of generalization as a result of the bacilli being disseminated by the blood stream.

The picture presented by tuberculosis of the spleen, which showed lesions in 3.8 per cent. of the above carcasses, is very peculiar to one who is familiar only with cattle tuberculosis. The spleen is usually darker in color and the surface is quite rough and nodular, depending upon the number and size of the tubercles. Unlike the spleen of a tuberculous cow, these nodlues occur not often on the serous membrane but in the parenchyma. They vary from the size of a half pea to as large as a shellbark. The external pale or light red nodules are raised above the surface of the organ and frequently show fibrous tissue bands radiating from the centrally necrotic area. The lesions observed in the mediastinal glands are similar to those in other glands and were noted in 1.8 per cent. of the cases, while the sublumbar glands were found affected in .9 per cent. of the carcasses. The serous membranes may show an eruption of tuberculous granulations and have been noted on the pleura in .1 per cent., and on the peritoneum in .006 per cent. of the cases. The generative organs are rarely affected. The bones, however, are more frequently attacked, those of the vertebral column, pelvis and of the articulated extremities showing tubercular affection in .007 per cent. of the carcasses. Tuberculosis of the muscles has been

noted but not so frequently as of the bones and joints. The extreme rarity of lesions in the kidney is shown by the finding of but 3 cases in the 120,000 tuberculous carcasses. As an examination of the prepectoral, prescapular and inguinal glands were not made in all instances no percentage will be given.

Occasionally, also, ulcers and tuberculous nodules are noticed on the mucosa or submucosa of the small intestines, especially of young pigs, but these likewise are rare, and when found usually accompany generalized lesions elsewhere in the body.

RELATION TO MEAT INSPECTION.

As you probably observed during your trip through the packing house this morning, the post-mortem inspection of hogs by the bureau officials is very thorough, and is so ordered that tuberculous animals are quickly separated from those that are healthy. Without making mention of the various hands through which the hog passes while being unloaded after his arrival at the city, yarded, sold, weighed, driven to the packing house, killed, scalded and run through the scraper, we will meet him at the point where, lying on the traveling table, his head is almost severed from the body. Here he is examined by a veterinary inspector of the bureau, who palpates and if necessary incises the submaxillary glands which have been exposed by the cut just made by the butcher for removing the head. Should these glands prove to be healthy the hog is allowed to pass down onto the rail unmolested; if, on the other hand, these glands are seen to be tuberculous, the animal is marked and is then run into a separate compartment called the retaining room, without being eviscerated. Most of the tuberculous animals are detected here at the header's bench, our records above given showing that 93.3 per cent. of the tuberculous hogs support lesions in the glands in the region of the throat.

From the header's bench the hogs which have not been tagged because of the tuberculous glands are sent along the rail to the gutter's bench, where another veterinary inspector is stationed, whose duties consist of examining each hog, giving spe-

cial attention to the viscera. His search is not limited to the detection of tuberculosis, but he must watch for any of the diseases proscribed by the regulations of the bureau. As there are a certain per cent. of hogs which support tuberculosis in the visceral organs without giving any evidence of the same in the cervical glands the inspector at the gutter's bench is able to detect a number of tuberculous subjects in addition to those already tagged by the veterinarian at the header's table, being guided by the appearance of the lesions in the liver, spleen, lungs or visceral glands.

Another inspector has recently been installed and he is stationd at the point on the line where the carcasses are split, it having been found that occasionally vertebral lesions and lesions of the serous membranes will exist, even when the visceral organs are apparently normal. Returning to the hogs tagged by the inspector on the heading bench, they are passed along to the retaining room, where they are eviscerated by a separate lot of butchers, using separate tools, under the supervision of a fourth veterinary inspector. By this method the affected parts or tissues are prevented from coming in contact with the healthy meats and are passed directly from the retaining room to either the condemned room or to the offal tanks, together with the condemned carcasses. In the retaining room by this time there will be many hogs on the rail that are only slightly affected with tuberculosis, and these are now beheaded, split, trimmed and passed on the cooling rooms.

It is not a very difficult problem to pass judgment on the carcass of a hog affected with tuberculosis when the lesions are slight or when they are widespread. Most sanitarians are agreed in their opinion to pass the former class for food after removing the diseased parts and of condemning the latter class. In the great majority of hogs with lesions in the submaxillary, bronchial and hepatic lymph glands, or any combination of them, in which the foci are of the same character, size and consistence, and apparently of the same age, and in these cases it is not difficult to consider the animals infected by a limited exposure with

resulting lesions in these various glands. Indeed, by experiments performed by the bureau, where hogs were fed for two feedings on cultures of tubercle bacilli it was observed that apparently some of the tubercle bacilli entered the submaxillary glands, while others lodged in the bronchial and hepatic glands at about the same time. These are purely primary lymphatic invasions, and these are the cases in which it is customary for the inspector to remove all diseased parts from the carcass and allow the remainder to be passed as suitable for food. The principle governing such disposition of this class of carcasses is that there being no evidence that the tubercle bacilli have been taken up from the portal of entry to the body by the blood vessels there could have been no scattering of such organisms through the muscular parts of the carcass, and these may therefore be eaten with impunity. It is in cases of this class that danger from the development of tuberculin has been suggested. This, however, has been disproved by the experiments of Eber and ourselves.

The disposition of cases of generalized tuberculosis is also an easy matter, for it is evident that the infectious organisms have gained entrance to the blood vessels, and by this means have been conveyed to all parts of the carcass, infecting the meat more or less completely. The rendering of such carcasses in the offal tank is the only rational disposition that can be made of them. There are other cases in which the development of disease has reached a stage which may admit some discussion as to the advisability of using the meat for food. Many tuberculous hogs are found that give no evidence of cachexia or wasting and that show on examination that the disease has not become generalized or extensive, although it has advanced beyond the point of primary glandular infection. Here the inspector must act carefully, trying to avoid the waste or loss of any meats that may be safely converted into human food, and at the same time being sure that nothing of a dangerous character is allowed to enter the cooling or cutting rooms. If the lesions of tuberculosis in the animal under his consideration are so located that they be readily removed, a third method of disposing of the carcass may

be selected. The carcass may be carefully trimmed, the tuberculous parts being consigned to the offal tank, while the trimmed meat, comprising the bulk of the edible portions of the animal, is placed in the lard rendering tank, where it must be cooked by means of steam at a temperature not lower than 220 degrees Fahrenheit for not less than four hours for the extraction of the lard which it contains.

PREVENTIVE MEASURES.

The first step to be taken in preventing further spread of the disease is to remove all affected animals, whether hogs or cattle, from the premises, as these will only serve as sources of infection so long as they are allowed to mingle with healthy animals. In dealing with affected herds of cattle it has been found best in most cases to apply the tuberculin test to the entire herd as a means of selecting the tuberculous animals, but with a drove of hogs in which tuberculosis has appeared there can be no doubt that the best and surest method of procedure will in nearly every case be found in the slaughter of the entire drove as soon as they can be put in a marketable condition. This means of removing from the farm all of the centers of infection which exist among its swine is made possible and practicable by the ease with which a new drove may be built up from fresh foundation stock. With cattle the offspring seldom numher more than one per cow per year, and the young cow does not produce until two years of age. With swine reproduction may be expected when the gilt is one year old, and instead of producing but one young at birth, from six to ten may reasonably be expected. If properly handled the first litter of young may be weaned in time to allow the sow to farrow again the same year. This shows how very rapidly a farm may be stocked with healthy swine after the total slaughter of a tuberculous lot. The early age at which the young sow may be bred, her capacity for breeding twice per year and the plural number of her offspring are forceful arguments for the total destuction of every diseased drove of hogs, and the breeding up in clean, healthy quarters, of course, of a sound, healthy drove in its stead.

As tuberculosis seldom attacks the swine of a farm except through tuberculous cattle, the tuberculin test should be applied to all of the cattle on the place, and all tuberculous animals among them should be destroyed at the time of disposing of the hogs.

With the hogs all removed from the place and no tuberculous cattle remaining attention should next be given to disinfecting the premises, that no center of infection may be left to contaminate future purchases of live stock. The disinfection of pens and stables may be accomplished by thoroughly cleaning them, scrubbing the floors with hot water, brushing down all loose dust from the walls and tearing out all woodwork which has become partly decayed. The interior of the pens or stables should then be carefully covered with a coating of lime wash containing 1 part of formalin to 30 parts of the lime wash, or 4 ounces of formalin to each gallon of the lime preparation. The yards should be carefully cleaned at the same time, especial attention being given to the removal of all rubbish and litter from the dark, shady corners. Lime may then be sprinkled upon these dark portions of the yards, or a 3 per cent. solution of carbolic acid may be used instead. In all of the open portions of the yard the action of the direct rays from the sun will very quickly destroy all of the virulence of the scattered tubercle bacilli.

The premises now being cleaned healthy foundation stock may be procured, and if proper attention is given to keeping the cattle of the farm free from tuberculosis, and to supplying the hogs with suitable food, the owner may feel every reasonable assurance that he has seen the last of tuberculosis among his swine. The trouble, time and expense required will be more than repaid by the advantages gained. In case the disease has only recently been introduced among the hogs it would be advisable to apply the tuberculin test that the affection may be detected in the early stages in order that the hog raiser may clean up his herd with as little loss as possible.

The heating of all milk when received at public creameries to 176 degrees Fahrenheit or to 80 degrees C. has been found

most effective in preventing the spread of tuberculosis to the animals consuming the by-products of such creameries. Denmark was one of the pioneers in this movement, having in 1898 passed a law requiring all skimmed milk and all buttermilk to be warmed to 185 degrees Fahrenheit before it could be distributed from any creamery to its patrons for feeding purposes. It was found, however, that this degree of heat was harmful to the product, and in 1904 the required temperature was reduced to 176 degrees Fahrenheit, experiments having proved that no tubercle bacilli could withstand such application. In practically all of the Danish creameries from this latter date the whole milk has been heated to the required point, thus assuring butter that is free from tubercular organisms as well as by-products that are safe for use in feeding hogs or calves. The result of these regulations has been most satisfactory. The spread of tuberculosis to farms previously free, through the skimmed milk or the buttermilk from creameries, has been very markedly checked, and suppression of the disease in hogs has been plainly noticeable. Treating of creamery milk as a cause of the spread of tuberculosis among hogs Moussou makes the statement that sterilization of the by-products of creameries and cheese factories results in the disappearance of tuberculosis of an alimentary origin among hogs fed with them, and the hog owners do no longer fear losses from this disease.

Borgeaud has cited an instance in which a serious outbreak of tuberculosis among hogs was overcome by boiling all of the separated milk before feeding it to the subsequent litters of young pigs.

While pamphlets, popular articles and public notices would be extremely useful in eradictaing tuberculosis in swine, it would probably be more satisfactory to explain the methods to be followed by the hog raiser by word of mouth. As this suppression of tuberculosis is entirely voluntary on his part, a powerful propaganda is of the greatest value, and the veterinarian is the best equipped man available for the work. The state should also assist by employing veterinarians to give public lectures in towns

and townships, as is being done at present in Sweden. We now have absolute knowledge that the vast majority of cases of hog tuberculosis are produced by

(1) Raw milk and slime from creameries.
(2) Hand-separated milk from tuberculous cattle.
(3) Feeding behind tuberculous cattle.
(4) Feeding tuberculous carcasses.
(5) Feeding slaughter house offal.

It therefore behooves us as veterinarians to educate our clients as to the proper methods of preventing this disease as we would recommend a proper feeding ration or proper construction of a stable. Inform our clients to (1) scald all raw products returned from the creamery; (2) to test their cattle if a hand separator is used on the farms, or in the absence of such a test, to scald the skimmed milk; (3) to feed only behind cattle that have not reacted to the tuberculin test; (4) to feed carcasses of animals that have died from any cause and offal from the slaughter house only after the meat and offal have been thoroughly cooked.

Sooner or later the packer and slaughterer are going to buy hogs subject to the post-mortem inspection, as they are at present doing in some of the large packing centers with certain classes of female cattle, and the hog raiser who in face of the advice obtained from his veterinarian, his stock papers, or elsewhere, continues to fatten his hogs as of old should be made to sustain the losses arising from his lack of knowledge, skepticism or indifference, and not the innocent purchaser who cannot be familiar with methods of feeding in vogue on the farms of the different breeders. Nor should the intelligent hog raiser who produces healthy hogs by carrying out minutely the known and proved methods of prevention be obliged to bear a portion of the burden of the careless or ignorant hog raiser as at present. To-day the hug buyer must make his purchases with the absolute knowledge that a certain proportion of his purchase will be condemned for tuberculosis, and as the post-mortem examination is the only key to the extent of the disease, the careful breeder must

suffer equally with the careless one. This is not equitable. When the packer buys subject to the post-mortem results the intelligent hog raiser will get more for his healthy hogs than now, and the ignorant breeder less for his tuberculosis hogs, as it should be. It would be money well expended if butchers and packers who are losing so much from hog tuberculosis would employ veterinarians in their vicinity to write popular articles, giving correct views on how to suppress tuberculosis on the farm, and mail them to their hog shippers and hog raisers in furtherance of this plan of eradication. Extermination of hog tuberculosis is practicable, relatively easy, and should be attained without delay, before the disease has gained too much headway.

One of the favorable steps in this direction and one that will undoubtedly tend to check the advance of tuberculosis is the enactment of the following laws by the States of Iowa and Minnesota:

Laws of the Thirty-first General Assembly of the State of Iowa (1906).

Be it enacted by the General Assembly of the State of Iowa:

Section 1.—That every owner, manager or operator of a creamery shall, before delivering to any person any skimmed milk, cause the same to be pasteurized at a temperature of at least one hundred and eighty-five (185) degrees Fahrenheit.

Section 2.—Whoever violates the provisions of this Act shall, upon conviction, be liable to a fine of not less than twenty-five (25) dollars, nor more than one hundred (100) dollars.

General laws of Minnesota for 1903 to prohibit and prevent the manufacture or sale of unhealthy or adulterated dairy products.

Be it enacted by the Legislature of the State of Minnesota:

Section 10.—That all creameries, before delivering to any patron any skimmed or separated milk, shall have pasteurized the same at a temperature of at least 180 degrees Fahrenheit.

Similar laws to the above are at present being considered for Wisconsin and Illinois but have not as yet been enacted.

FUTURE WORK IN ERADICATING TUBERCULOSIS.

By A. D. Melvin, M. D. C., Chief of Bureau of Animal Industry, Washington, D. C.

Presented to 44th Annual Meeting of the American Veterinary Medical Association, at Kansas City, Mo., Sept. 10-13, 1907.

So much has been written upon the subject of the eradication of tuberculosis for so many years that it may seem superfluous to say anything further before this body, but the fact remains that although much has been said and much work has been done, this disease is, without doubt, upon the increase.

The great agitation which has been going on for some time regarding meat and milk inspection has brought this question of tuberculosis before the public in a more direct manner than ever before, and it occupies an important position in the minds of all reasoning people. Never, therefore, has the time seemed so favorable for securing the endorsement of the people in carrying on the work of eradication. In an important movement of this sort it is imperative that it be sustained by the endorsement of the public, for without such endorsement those who are selfishly interested generally place so many obstacles in the way as to successfully frustrate any effort in that direction. Without becoming alarmists to an unnecessary degree, it is the duty of the profession to keep this matter before the public in such a way that the public may become familiar with the subject and understand the importance of eradication from both an economic and health standpoint.

The reports of the Bureau of Animal Industry indicate that this disease is steadily increasing, as shown by the number of animals found affected at the various slaughtering centers. The increase in the number of cases found is due in part to the increased efficiency of the method of inspection, but only in part. For the fiscal year ending June 30, 1903, the percentage of tuberculosis found in cattle at abattoirs was 0.169; in 1904, 0.203;

in 1905, 0.226; in 1906, 0.259, and in 1907, 0.363; for the months of January, February and March, 1907, the percentage was 0.434, and for the months of April, May, June, 1907, the percentage was 0.539. Thus, during a period of five years the increase in cases found upon post-mortem examination has been from 0.169 to 0.539, which surely is an alarming state of affairs. The various recent articles showing the ease with which this disease can apparently be conveyed from cattle to man has awakened the interest of the medical profession and it is now ready to support any movement looking to the eradication of the disease. The very general impression throughout the medical profession until recent years that this disease was conveyed principally through the medium of dust and by inhalation failed to interest that profession in any movement looking toward the eradication of tuberculosis from live stock.

Without considering the matter as a public health question, but looking at it entirely from an economic standpoint and as a business proposition, live stock raisers cannot afford to have this disease in their herds. As an illustration, Argentina requires that all cattle imported into that country be subjected to the tuberculin test upon arrival, and as a consequence exporters from the United States had the test made of all cattle intended for shipment. The results of these tests show that in some of the full-blooded herds nearly fifty per cent. of the animals reacted, and in consequence that many sales were lost.

When the practice becomes general for all buyers of breeding cattle to have the same tested before placing them in their herds the breeder of strictly healthy cattle will then be much sought after. Already some breeders of full-blooded cattle have established or are arranging to establish such free herds.

Considerable tuberculin testing of cattle has been done in Washington, D. C., and vicinity, for the purpose of assisting the District authorities in obtaining a pure milk supply and of obtaining for the bureau further information regarding the extent of tuberculosis in that locality, and for other purposes. The

tests conducted by the bureau showed over eighteen per cent. of the cattle reacting. The percentage of tuberculosis in various States, shown by tests conducted by the officials of those States with bureau tuberculin, indicate from 2.79 per cent. to 19.69 per cent. of the cows reacting and slaughtered as being tuberculous. It should be stated, however, that in all probability the majority of these tests were made in herds where the disease was thought to exist and that on that account the percentage may be higher than it would be if all of the cows of a certain section were tested.

In various sections where an effort has been made to secure a wholesome milk supply, many dairymen have been found ready of their own accord to assist in the work of eradication. Many others would do so with some small financial assistance, and others would necessarily have to be forced to submit their cattle for examination. As the eradication of the disease in such cases is undertaken as a public health measure it would seem reasonable that the States should assist in recompensing, at least in part, the dairymen whose cattle are slaughtered. Many of these dairies consist of highly bred cattle, and it has been and will be necessary to employ the Bang method, in addition to the slaughter of the reacting animals.

The following is a form of agreement prepared by the bureau and required as the consideration for testing the herd:

UNITED STATES DEPARTMENT OF AGRICULTURE.

BUREAU OF ANIMAL INDUSTRY.

Agreement.

IN CONSIDERATION of the testing of my herd of dairy cattle by the Bureau of Animal Industry of the United States Department of Agriculture, and the assistance of said Bureau in enabling me to produce milk free from the contamination of disease germs, I, ... owner of ..... dairy herd, do hereby agree as follows:

1. I will cause all animals that react to the tuberculin test, and which also show other symptoms of tuberculosis, to be slaughtered within a reasonable time under United States meat inspection, and I will cause the carcasses of said animals to be disposed of according to the meat-inspection regulations of the Bureau of Animal Industry, based upon the lesions found upon inspection. ..

2. I will cause all animals that react to the tuberculin test, but which show no other evidence of tuberculosis, either to be slaughtered and disposed

of as herein provided for animals which show also other evidence of tuberculosis, or I will cause such animals to be removed from the dairy farm upon which the healthy animals of the herd are maintained, and I will cause the diseased animals to be segregated from the healthy animals, and thereafter they shall remain so segregated.

3. In all cases where the milk from such segregated reacting animals is to be used for any purpose whatever I will cause the said milk to be sterilized.

4. I will cause the young from said segregated reacting animals to be removed from their mothers at birth, and will not permit the said young to suckle their mothers.

5. Any part of my premises contaminated by reacting animals will be submitted by me to a thorough disinfection under the direction or supervision of the Bureau of Animal Industry.

6. All cows owned by me—both healthy and tuberculous—I will mark in such manner as to enable their identity to be retained, and I will change the location of no cows except after due and timely notification to the Bureau of Animal Industry.

7. I will add no cattle to the said herd which have not passed a tuberculin test administered by an authorized agent of the Department of Health of the District of Columbia or by an agent of the Bureau of Animal Industry.

8. I will comply with all reasonable sanitary measures which are indicated by the Department of Health of the District of Columbia or by the Bureau of Animal Industry.

IN WITNESS WHEREOF I have signed this agreement this.....

day of ....., one thousand nine hundred and seven.

.....

Owner of the ..... Dairy Herd.

(Address) .....

.....

Witness:

.....

The recent effort of the large packing interests to buy all dairy cows subject to post-mortem inspection shows how serious the plague is becoming. Sooner or later the one who raises those diseased animals must suffer the loss, unless the loss is paid for out of public funds, and when he does you may then know that the end of the disease is in sight.

As before stated, no progressive stock raiser, and in fact no stock raiser, whether progressive or not, can afford to go on breeding cattle while this disease exists in his herd. As soon as this fact is fully understood much of the objection raised against

the sale of live stock subject to inspection will disappear, for it would be worth the price of several condemned animals for the owner of a valuable herd to know as early as possible when the disease exists in his herd, as the longer he delays in taking steps to prevent its spread the greater will be his loss eventually.

Some years ago the Bureau of Animal Industry, in order to protect, as far as possible, the breeders of cattle from the danger of this disease, issued an order requiring all cattle imported for breeding purposes to be subjected to the tuberculin test. The wisdom of this step can be shown by merely stating that 19.7 per cent. of the cattle tested since that time have reacted, and that from several foreign herds no cattle are even considered for testing on account of the general infection existing in those herds. Unless some steps are taken soon to eradicate the disease will not the same conditions exist in this country within a few years, if they do not already obtain in some instances?

The bureau has recently undertaken to ascertain the origin of all tuberculous cattle slaughtered at establishments where inspection is maintained and in such instances to inform the State authorities of the facts. The information thus obtained is transmitted to the authorities of the various States, and it is hoped that it will be used in endeavoring to locate the centers where infection exists and to eradicate the disease. When a system of co-operation can be effected between the State and Federal Governments providing for a general plan of tagging all dairy cows shipped to market centers for slaughter, then the work of locating these disease centers will be greatly simplified. Had the packers been successful in their recent efforts to buy all such cattle subject to inspection such a system of tagging would have been necessary in order that the identity of the animal could have been retained.

It may at some time be necessary for the Federal Government to quarantine against the interstate shipment of cows from certain States where the disease prevails to a considerable extent and require a strict supervision over all animals removed from such States for interstate shipment, and only remove the quaran-

tine from sections of a State when it has been demonstrated that the disease has been either eradicated or is under strict local quarantine.

The recent agitation against the milk of tuberculous cows as human food has had the effect of causing many herds to be examined with astonishing results to not only the owners but to the officials themselves. Can it be wondered at that so many infants and children die of intestinal tuberculosis when so many of the cows from which the milk is obtained are tuberculous?

Recent feeding experiments conducted by the bureau have proved conclusively that hogs are readily infected through the ingestion of fæces and of milk from tuberculous cows. The percentage of all cases of tuberculosis of all the hogs slaughtered under inspection for the fiscal year ending June 30, 1907, amounts to 1.43. There is no doubt in my mind that this percentage will be reduced to a negligible quantity as soon as the disease is eradicated from cattle. There has been considerable incredulity with reference to the tuberculin test, particularly among those opposed to the movement to stamp out the disease, but the statements of such persons should not be given very serious consideration except as they may be the means of prejudicing the uninformed against the tests. There is no more reliable diagnostic agent than properly prepared tuberculin in the hands of the careful observer. The reports received by the bureau from State officials from all parts of the United States of tests made by competent veterinarians absolutely confirm this statement. Frequently affected animals give little or no reaction, or a subnormal temperature, but in these latter cases any veterinarian of average ability should be able to diagnose the disease by physical examination alone, as in nearly all such cases the disease has become so generalized that a mistake should not be possible. It is understood, of course, that tuberculin should be administered by a reliable veterinarian and that in addition to the test a physical examination should be made of the cattle. A compilation of these many tests is now being made with a view to publishing the report.

That impotent commercial tuberculin has been on the market is a fact which was demonstrated by the bureau, and at its request Congress gave to it authority to make tests of tuberculin, vaccines and similar products, and to publish results. Such tests are now being made, and if any inferior agents are found public notice of that fact will be given. The use of this worthless tuberculin may to some degree have been the means of prejudicing some practitioners and others against the use of any tuberculin.

In my opinion the time is very near at hand when our profession will be face to face with the problem of eradicating this plague from the herds of the country. It therefore stands us all in hand to give the subject our most careful thought and consideration. It means the expenditure of millions of dollars of public money and a great financial loss to individuals. I again repeat that in a movement of this magnitude it is necessary to have the support of the public and of the live stock owners in general in order to meet with success; and the principal object of this paper is to place before you the importance of informing stock owners and others of the great dangers from tuberculosis both from an economic and health point of view.

Conserving Horse Power.—The time and energy expended by horses in going to and from their daily work in New York sometimes represent an enormous waste, measured in dollars and cents. William Bradley came to this conclusion a short time ago after figuring on the total distance that his teams would have to travel in the next few months between their stables at the foot of West Sixty-eighth street and their work on the new bridge loop subway down on the lower East Side. Ten minutes with a pencil and paper convinced the well-known contractor that he could better afford to buy a block of land and establish new stables near the work than to have all his horses wearing themselves out by walking about ten miles uselessly every day. He estimated that the distance travelled would aggregate something like 19,000 miles. He accordingly purchased outright a whole block in Stanton street, running through toward the East river, and now has his entire subway loop plant concentrated there.—(*New York Herald.*)

THE ANIMAL TUBERCULOSIS PROBLEM.

By Dr. Burton Rogers, Manhattan, Kansas.

Every phase of tuberculosis has been the special study of the writer for many years, and he has taken active interest in methods for its most economic, rapid and satisfactory eradication from the food animals. There is proposed herein a plan which the writer has had for quite a long time, and it is hoped the idea started will be subject to such improvements in the minds of those who read it that their suggestions will result in the general plan being immediately attempted.

The farmers of several states, particularly in Iowa, in 1898, cast their bread upon the water and it has returned, when they attempted to block any legislation suggested by the veterinary profession for its eradication in animals.

Ninety per cent. of the farmers of this country are needlessly biting off their own heads when they bring political influence to bear against wise and commendable legislation.

From a personal experiment in a certain district of tagging 3,430 hogs brought to market in 626 different wagons, and killing the animals later, I found that only 39 different farmers had brought in tuberculous hogs. This having been in an especially bad district, I believe a conservative estimate, taking the country as a whole, would be that less than 6 per cent. of the farmers in the United States are sending all the tuberculosis food animals to market, causing 100 per cent. of the farmers, 100 per cent. of the packers and 100 per cent. of the consumers to suffer in varying proportions. From more viewpoints than one it is to the positive interest of the 94 per cent. who do not now have tuberculosis upon their premises to ascertain whether they are one of the 94 per cent., and if so, to even go farther and see that it is eradicated entirely from the 6 per cent.

If we are not careful we will some day awaken to the fact that the newly-developing countries of South America, starting

rightly as an advantage, will soon eradicate tuberculosis from their herds, and then possibly set up a justified European scare against our dairy products not coming from animals known to be free from tuberculosis.

The bulk of cattle condemned by federal meat inspectors are *cows* affected with tuberculosis, and some of these up to periods of fifteen years have been supplying milk in a raw state to the consumer, and these cows have been continuing the disease to others, and to hogs and to chickens *ad infinitum*. Now, that is true scandal. The concentrated carefulness and government jurisdiction of packing houses will make our meat products good, wholesome, and perfect, in spite of and in the face of the *scattered* carelessness and indifference, neglect and heedlessness of our farmers, but it will not make the products of over 5,000,000 cows good and sanitary and wholesome. The tuberculosis cow is not handicapped one iota in competition with the healthy cow. She and other species are "gold bricks."

It is the American farmer, as well as the American packer, who should certainly be responsible for and who can make the reputation of American meats and dairy produce.

Ultimately it would be a profitable financial investment for this nation, in proportionate conjunction with the several states as they have been neglectful, to cause every cow in the land to be tested for tuberculosis, and wherever found, the remaining animals on the same premises likewise tested, and then send them down to Southwestern Government land reservations, divided up according to the several states, and there be placed under favorable therapeutic conditions, the animals to be bought either at full value or at a discount from a pooled fund from the federal, state and county governments and the packer.

But, better still, I firmly believe if the Government and the farmers would do their part faithfully that the packers would be willing to suffer the entire loss from the condemnations of the animals that are now tuberculous. If the 6 per cent. of the farms which now have all the tuberculosis animals upon them could be ascertained, I am sure the packers would be willing to

buy outright every one of the food animals on these farms at full market values and without one cent of loss to the farmer. These are the animals that are giving and transmitting the disease to those that will be marketed in the years to come. The only cost to the farmer will be that of properly disinfecting his premises in an approved manner, and he should be glad to do that. The only cost to the Government would be the testing of the remaining animals on farms which are known to have had tuberculosis animals upon them. And really the packer will not lose a single penny, for all the tuberculous animals living now, unless they die or are killed beforehand, will ultimately reach the open market, where he will buy them unconsciously and with exactly the same loss. Indeed, if bought now the disease may not be advanced to the stage that would cause its condemnation by the inspectors in a few months more time. One thing sure, the disease would be practically eradicated, and they will have prevented the losses of to-morrow.

So, evidently, the whole problem is one of discovering where the tuberculosis animals are at present located, and that is the object of this article and the following crude forms of resolutions which I am sure and hope the readers will try to improve.

The tags should be made in the form of a fraction, each county in the state being given a number, and that be the numerator, and each live stock owner in each county be given a number, which will be the denominator of the fraction. A letter for each state.

All readers will understand the following resolutions have never been made, but are simply a proposed set.

"WHEREAS, We, the packers, are suffering immense loss and risk of losses from the condemnation of food animals in order to fulfill the requirements of the meat inspection act of June, 1906, and without criticism of that act,

"Whereas, We believe this combined effort on our part is in behalf of the common good, we, the packers, do hereby resolve:

"That, We agree to bear the expense of having prepared a sufficient number of recognition tags of a type approved by the

U. S. Department of Agriculture, or the Kansas State Experiment Station, providing the farmers of the state of Kansas adhere to their resolutions of (date) and apply the tags to all live stock, except range cattle, sent to market prior to December 31, 1909, and to all cows and bulls sent to market prior to December 31, 1912.

"That upon the discovery of tuberculosis by the U. S. inspectors in any animal slaughtered in our packing houses, that can be traced by the tag number to the owner, the packer and the owner only shall be notified of that fact by the government.

"That the owner of such animals shall be required to allow all susceptible food animals upon his premises to be tested for tuberculosis with tuberculin by methods recognized by the U. S. Department of Agriculture or the Kansas Experiment Station, unless he would prefer to sell every animal to the packer without having the test made.

"That we, the packers, agree to pay the full market value for all the animals which react to the tuberculin test, or for all the animals on the premises, provided as per their resolution of (date), the farmers will immediately separate the healthy from the reacting ones, and not allow them to come in contact with healthy animals except during shipment, and will make all efforts at their expense to disinfect their premises in a manner the U. S. Department of Agriculture or Kansas Experiment Station deems necessary to prevent the spread of the disease from the source to additional animals.

"That we, the packers, will bear the loss from the condemnation of tubercular animals coming from the state of Kansas, in the following proportion based on the losses each packer suffered for the same cause during the previous year. In the form of a fraction let the denominator represent the total losses for the previous year by all the packers, and the numerator equal the loss by each packer for the same period. Reduce to a common fraction that will apportion the losses from condemned animals coming from Kansas during the period of the experiment.

"That the federal and state governments should bear the expense of the testing and necessary record keeping.

"That the state and federal governments should give the necessary legal aid to assist in demonstrating the success or failure of the experiment.

"That we do not choose Kansas with any belief that she has a greater amount of the disease than any other state. In fact, we believe she has less than the principal ones.

"That we firmly believe the disease can be practically eradicated within a period of five years if such a course as these resolutions indicate be adopted."

The following are proposed resolutions which it is hoped the farmers will make:

"Whereas, We, the farmers of the state of Kansas, realize that tuberculosis of the food animals is prevalent throughout the civilized world,

"Whereas, We believe on good authority that there is less percentage in the United States than in any other country in the world, thus making it an easier problem to deal with;

"Whereas, We sincerely believe less than 6% of the farmers of the entire country are owning and marketing all the tuberculous animals, the remaining 94% being absolutely innocent;

"Whereas, We believe the disease to be one which will steadily increase unless there is some intervention, each succeeding year, therefore making the problem more difficult;

"Whereas, We believe the disease cannot be recognized in the live animal except by application of the tuberculin test;

"Whereas, We believe the disease communicable and preventable;

"Whereas, We are solicitous regarding the possibilities of ourselves and family becoming affected with the disease from our cattle in a manner similar to the way our hogs acquire the disease;

" Whereas, We are sincerely desirous that our entire live stock shall become a meat product of the highest quality without the economic destruction which the meat inspection service now shows to be necessary;

" Whereas, We are desirous of eliminating the risk of immense losses from condemnations which the packers now suffer in buying on the open market, and really reacting against us;

" Whereas, We believe in offering for sale only what we can guarantee and thus give a 'square deal';

" Whereas, We know a large quantity of feed and labor is expended on animals that never reach the economic purpose and value intended;

" Whereas, We believe that co-operation instead of confliction and antagonism between the packers and live stock owners will be found to be the most rapid, economic and certainly most commendable method to adopt for its eradication;

" Whereas, We believe the state of Kansas to have at present as small a percentage of tuberculosis as any of the middle states, and less than the eastern;

" Whereas, We feel the state of Kansas to be as progressive as any state in the Union and can, therefore, be a pioneer in inaugurating a method, the success of which seems at present so promising that an example will be set to the other states:

" Whereas, The packers slaughtering animals coming from the state of Kansas have agreed to pay full market value for all tubercular animals until December 31, 1909, under all the conditions stated in these resolutions and their resolutions of (date);

"We, the farmers and live stock owners of the state of Kansas do hereby resolve,

"That, providing the aforesaid packers furnish the proper tags, we hereby agree to properly and securely tag in the left ear all food animals which we send to market prior to December 31, 1909;

"That the United States Department of Agriculture should conduct the work of distributing the tags to the farmers which the packers furnish, and keep all records necessary;

"That the United States Postoffice Department should authorize the Department of Agriculture to forward these tags to the farmers by mail without cost;

"That we will forward the U. S. Department of Agriculture as accurate an estimate as is consistent of how many of each species of food animals we will market in the six months;

"That in case the government inspectors find one or more of the animals belonging to an individual to be tuberculous at time of slaughter, that individual agrees to allow every susceptible animal he owns or which is on his place to be tested for tuberculosis with tuberculin by methods approved of by the government and state experiment station;

"That every animal found to be tuberculosis will be immediately separated and not allowed to come in contact with healthy animals, and the reacting animals will be sold immediately to the packers at a price a similar animal in a healthy condition would bring, allowing, however, the feeder to finish the animals if he desires.

"That in case tuberculosis shall be found in a pure bred and high type of animal it is desired and believed it will be more economical to retain and transmit his other good qualities, this animal can be retained under conditions laid down by the government that are believed will not transmit the disease to additional animals;

"That the owner will not sell the reacting animals except to the packer;

"That immediately after the removal of the tuberculous animals the premises will be disinfected at the owner's expense in a manner which the government and the state experiment station shall deem sufficient to prevent the spread of the disease;

"That within one year all the susceptible animals will be allowed to be retested, and all reacting ones treated as above;

"That Congress and the State Legislature of Kansas should appropriate sufficient money to pay for the testing and for part of the record expense:

....., 1907.

Dr. BURTON ROGERS,
Manhattan, Kansas:

I approve of the plan which you propose for the eradication of tuberculosis, but would make the following criticisms and suggestions.

Signed,

.....

Fold here and cut; paste on both sides of card.

POST CARD. One cent stamp.

Dr. BURTON ROGERS,
Kansas State College,
Manhattan, Kans.

THE NEW YORK STATE VETERINARY COLLEGE reports a freshman class of 35 and an entire attendance of 77.

"I DO NOT SEE how any practitioner can afford to be without the REVIEW. You are more than entitled to the financial support of every veterinarian in the United States."—[*S. H. Saul, V. S., Memphis, Tenn.*]

"I HEARTILY COMMEND you for your efforts to make the REVIEW of the highest quality and I congratulate you upon your success in making it increasingly interesting and instructive."—[*C. C. Mills, V. S., Decatur, Ill.*]

IF THE MOUNTAIN WILL NOT GO TO MOHAMMED, MOHAMMED MUST COME TO THE MOUNTAIN.—A postscriptum to a letter from Dr. W. T. Monsarrat, dated at Honolulu, September 27, says: "Mrs. M. and myself have almost made up our minds to come on to the next meeting of the A. V. M. A." Good.

A PET ANIMAL'S CEMETERY has been established at Akron, Ohio, by Veterinarian Joseph Wingerter, who has set aside a number of acres of land for that purpose, which has been neatly enclosed. Any animal, from a canary bird to a horse, may be buried therein upon payment of a fee. Animals to be disposed of may be sent to Dr. Wingerter, who will destroy them and have them properly buried.

HITCHING IN HORSES.

By F. C. Grenside, V. S., New York City.

Read before Veterinary Medical Association of New York City, Oct. 2, 1907.

In the April number of this year's American Veterinary Review reference is made to the subject of "Hitching in Horses," by Dr. Dougherty, of Baltimore, Md. He states that the "hitching" horse is quite a common one, but that he has never found any one that could give a plausible reason for it. I have never seen anything written upon the subject except what I have contributed myself, consequently I think it is a proper one to bring before this meeting. Dr. Dougherty implies in the article referred to that this peculiarity of gait is due to one hind leg being shorter than the other, which theory my study of the subject does not allow me to subscribe to.

The "hitching" horse is not necessarily unsound or deformed, which we will endeavor to show, but it is one of the defects of action that horses exhibit which detracts very much from the gracefulness of movement in the trot and walk. It is a peculiar irregularity of the gait or hopping movement which results from lack of power or defective balance. It is said that "good cooks are born not made." Exactly the opposite in the case with "hitchers." They are made, not born, although there is no doubt that some colts are foaled with a predisposition to it, yet it may be kept in abeyance by good handling. The causes of "hitching" then may be said to be predisposing and exciting. Of the predisposing ones the most prolific is the lack of power and freedom of movement in the hind quarters. Cat-hammed horses, those with short hind quarters, and those that stand with their hocks too far behind them, are very liable to this defect of action. Among the exciting causes bad driving is one that frequently contributes to this fault. Some drivers will make almost every young horse they handle get into the habit, for it becomes almost a habit in some individuals. Starting off at too fast a

pace, urging a horse beyond his speed, particularly if he has a heavy vehicle behind him, and allowing him to go uncollectedly from driving with a loose rein are causes. Drivers that allow horses to rattle along with their heads loose, particularly if they are inclined to be free, will make many "hitchers," especially among young horses, and in those in which there is a predisposition to the fault. A driver or rider with bad hands is also apt to make a horse "hitch." Such a driver either takes a heavy, unyielding grip of the reins or else holds them unsteadily, which in either case is apt to put a horse off his balance.

Some drivers pride themselves on having light hands, that drive with loose reins, which is really not driving at all. A good driver always feels his horse's mouth, keeping him collected by exerting steady tension on the reins, but doing so with as light a hand as circumstances will permit. In addition to the causes already discussed and really the most important of all is the mouth, for a very large percentage of "hitching" is referable to that organ.

Horses which carry their heads steadily, hold them straight, with no crossing of the jaws or opening of the mouth, and which keep their tongues in position under the bit and have responsive but firm mouths, never "hitch" with anything like proper handling. Any discomfort of the mouth caused by bruises, abrasions or excoriations, making a horse side-line or bore, is very apt in the case of a very prompt horse to cause "hitching."

On the other hand, horses that do not face the bit firmly on account of soreness of the mouth or from the bit being too low in the mouth or from excessive natural sensitiveness of this organ, not uncommon among well-bred horses, from lack of courage or any cause that makes them go with unsteady heads.

Horses that draw their tongues up in their mouths when the pressure of the bit comes on them, allowing it to come in contact with the gums, and those that put their tongues over the bit, are very apt to carry unsteady heads and consequently to "hitch."

Horses that have not been properly bitted, or from anatomical defect are unable to bend their heads upon their necks, a horse that goes with his nose stuck out when tension is exerted upon the reins, the bit is pulled up in his mouth, forcing his cheeks against the anterior molars, and if there are sharp projections on them excoriations of the lining membrane of the cheeks result, causing soreness, which either makes a horse bear unduly on the bit or else carry his head unsteadily, in either case putting him off his balance.

Injuries to the tongue are also causes. Cicatrices on the tongue at the seat of pressure of the bit are a fruitful source of unsteady heads and consequent "hitching."

Reference has been made to the bit being placed too low in the mouth, as a cause, and here the importance of this point may be emphasized. I have frequently seen a horse "hitch" from the bit being placed so low in his mouth that he could not carry his head steadily, and by raising it a hole or two it made him comfortable and he would face it firmly and move with regularity. On the other hand, the bit being placed too high in the mouth will cause "boring" and "side-lining," in some cases with the same result, so that it is very important to find the proper position to place the bit in an individual so as to make him comfortable, which will be evidenced by his carrying his head in proper position, steadily and being balanced.

A tight-bearing rein will sometimes make a horse "hitch," and in another checking up will stop him. The character of the bit as well as its position in the mouth has much to do in contributing to a horse's comfort and proper way of going. Individuals differ in the kind of bit they require.

We have frequently referred to a horse being put off his balance, causing the irregularity of the gait we call "hitching." What is balance? A horse may be said to be balanced when every leg bears its proper proportion of weight and exerts its share of propulsion. Anything that interferes with this causes irregularity of the gait. The uninitiated are apt to mistake

" hitching " for lameness, and it is very hard to persuade them to the contrary, especially if a horse keeps doing it persistently. This is one of the interesting points of this question to the practitioner whether he is acting in the show ring, examining for soundness or disillusioning a client who is certain he has a lame horse when in reality he only has one that is " hitching."

The crucial test of course is jogging in hand. If a horse will jog out sound and with regularity when his head is free he cannot be considered a lame horse no matter how he goes in harness.

I have had some interesting experiences with " hitchers " and will take the liberty of narrating one instance in which I was a victim of circumstances. A patron of a riding club bought a thoroughbred mare for his daughter to ride, subject to my examination. I passed the mare and the purchase was consummated. In a day or so I was called up by the new owner asking me to look at the mare I had recently examined for him as she was going lame off hind. I went and had her jogged on the halter and found her going sound. The foreman of the stable who was looking on said to me: " This mare was certainly lame last night in the ring for I saw her dragging her off hind leg even in the walk and she was pronouncedly lame." I then asked him to put the saddle and bridle on her and have her ridden in the ring, and she went just as the foreman had said, dragging her off hind markedly in the walk. I at once attributed this phenomenon to the mouth, and, looking at the organ, found she had a narrow mouth with small, thin tongue, and rami of jaw very narrow and sharp. I found on further test that she had a very light or sensitive mouth, so asked them to replace the double bridle that had curb bit and bridoon she had been using, with a large, smooth snaffle, which they did, and she then went in a regular manner. I have seen many of such cases in which there was no unsoundness and no deformity.

Habitual " hitching " is a fault or defect just the same as other defects of action are faults and as " forging " is, but is not due to a lesion and consequently is not an unsoundness. If a horse persistently " hitches," however, he might almost as well

be lame as far as the unsightliness of the gait is concerned. In good hands, however, there is not much danger of its becoming habitual, and if it has from any cause it can generally be remedied by good management. Although there is no disease to be treated, as a rule, in overcoming "hitching" it is quite within the province of the veterinarian to put the owner on the proper course to pursue in overcoming the fault and he will gain quite as much thanks and glory by doing this as he will by curing a lame horse.

PROSECUTING ILLEGALS IN OHIO.—Dr. C. S. Bucher, of Archbold, Ohio, who was fined $10 and costs for unlawfully practicing veterinary medicine and surgery last week, is a graduate of the Grand Rapids, Michigan, Veterinary College, but failed in his examination before the Ohio State Board of Veterinary Examiners, and was practicing without a state license. The Ohio State Board of Veterinary Examiners do not recognize a diploma from any veterinary school, the students graduating from the veterinary department of the Ohio State University, must pass the Ohio State Board of Veterinary Examiners and obtain a license before practicing in the state. The Veterinary Law was enacted several years ago but has not been enforced until within the last year, and now is being enforced throughout the entire state, and all illegal practitioners are being prosecuted. Sections 1 and 10 of the law read as follows: Section 1. (Examination of Veterinarians) All persons who now, or shall hereafter, practice veterinary medicine and surgery in the State of Ohio, and have not been engaged in such practice for at least three years prior to the passage of this act (May 21, 1894), in the State of Ohio, shall be examined as to their qualifications by a state board of veterinary examiners. Section 10. (Penalty, emergency) Whoever shall engage in the practice of veterinary medicine or surgery in violation of this act shall, for the first offense, be fined not less than ten dollars, nor more than twenty-five dollars, and for the second offense not less than fifty dollars nor more than one hundred dollars, or be imprisoned in the county jail not more than sixty days, or both. Provided that nothing in this act shall be construed to prohibit any veterinary advice or service in case of emergency if rendered by a person not entitled to practice under this act.—(*Democratic Expositor, Wauseon, Ohio.*)

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

CHRONIC HYDROCEPHALUS.

By WINIFRED B. MACK, University of Nevada.

March 14th, I was called to the Experiment Station Farm to see a bay gelding about twelve years old, weighing probably 1,200 lbs. He had been a carriage horse until about two years ago, when on account of lameness from a bone spavin, he was discarded for this purpose and has since done light work on the farm. Until recently he was considered a remarkably intelligent horse.

The first apparent symptoms of disease appeared a few days before I was called, when in leading him from the stable, he collided with the door-post. Since then he had grown awkward in his work and had shown reluctance in turning toward the left. When first examined, he was at work to a light wagon. Was dull, listless, unintelligent; responded slowly to word or whip. His reluctance to back amounted almost to inability. Would turn readily in a narrow circle to the right, but it was impossible to turn him toward the left. His expression was languid, lips flaccid, ears drooped, mastication was slow and indifferent. He would assume abnormal attitudes; would stand with his anterior legs crossed, when they were placed in that position, until he lost his balance.

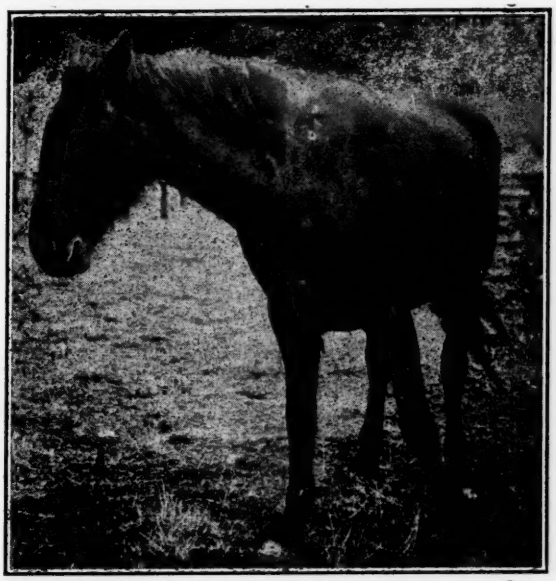
The attendants recalled, on being closely questioned, that for some time he had shown peculiarities of temperament, not remarked at the time. Where formerly, if allowed freedom of direction, he would return to the stable, of late he was as likely to go in the opposite direction.

Respiration, pulse and temperature were normal; digestive organs apparently healthy. Examined him closely for evidence of injury, but aside from a bone spavin, and the cerebral symptoms above noted, he appeared sound.

I diagnosed "Immobility," or chronic hydrocephalus, gave an unfavorable prognosis, advised rest in stable and corral, laxative diet, with purgative and tonic treatment.

March 19th he was observed to fall three times, but arose without help.

March 20th he was led from the stable with some difficulty to pose for the accompanying photograph. At this time he would sometimes pause during the mastication of a mouthful of hay, and appear to forget to finish it. On his return to the stable he fell and for some time efforts to induce him to arise were fruitless. While undertaking to move him to the stable, he arose and walked there, but with staggering, uncertain gait.



During the night he forced open the stable door and wandered away, through two fairly good fences, and was found in the morning in a ditch. He was drawn from the ditch, covered with blankets and lay there for three days. Finally, on account of a heavy snowstorm, he was hauled to the stable. March 24th he was found dead.

The autopsy showed the anterior third of the left cerebral hemisphere very soft, the wall thin and markedly degenerated. All other parts appeared normal, except the spavin above mentioned. There had been no injury about the head or back to account for his awkwardness or immobility.

The photograph reveals much as to his cerebral condition. The most remarkable feature of the case was his rapid decline after the first symptoms capable of attracting the attention of the attendants.

INTERESTING CASES FROM AN OHIO PRACTICE.

By J. E. FOSTER, V. S., Coshocton, Ohio.

Intraplacental Transmission of Rabies.

The first case I wish to report is one of rabies, the patient being a cow which had given birth to a calf a few days previous to her illness. The cow died the fourth day after the appearance of the disease. About one week after the cow's death the calf sickened with the disease. The interesting point in this connection is that this was a case of intraplacental transmission of the infection.

Ringing in the Ears.

A man came to my office and asked me to examine his four-year-old mare. I examined her while standing on her left side, then stepped to the right side, and told him that I could see nothing abnormal. He replied that I had detected the ailment, or at least that I had noticed it. He asked me if I had not heard a ringing sound while standing on the left side of the animal and if the location of the sound did not change when I stepped over to the right side. I replied that I did hear the ringing and that I thought the sound was produced by a steam whistle at a considerable distance. He told me to go near the mare's head, that I could then easily locate the music. I found that the sound came from the ears. The ringing sound was distinctly audible at a distance of from eight to ten feet from the animal.

Tuberculosis of the Heart.

I received a call by telephone to go to the country to determine the cause of death of a steer. When I arrived, I learned that the steer had been in apparent good health until he had fallen and expired. I told the owner that when he called me, I thought the animal had been sick for some time, that if I had known the steer died suddenly I likely would not have gone to make an examination, as it would likely be difficult to find the cause of death. However, I proceeded to hold the autopsy. The

contents of the abdominal and thoracic cavities appeared to be normal with the exception of a piece of brier, three inches long, being in the posterior portion of the left lung. The brier caused very little disturbance and certainly did not cause the animal's death. At some time previous I had seen cases of tuberculosis on this same farm. The steer I was examining was in fine condition, and I thought while I had the opportunity I would see if this animal might have tuberculosis. I found some glands about the throat tuberculous. I then wondered if tuberculosis of some important organ might not have caused death. I examined the heart: externally it appeared to be normal, but on cutting through the heart the knife passed through an abscess the size of a hen's egg.

Abnormally Located Testicle.

One of my patrons who had recently bought a number of Western steers told me that one of them acted as though he had not been unsexed. He had examined the animal and discovered nothing abnormal except a tumor about six inches to the right of the navel. He asked me to go and examine the steer. I found that the tumor on the abdomen was a testicle. The spermatic cord could be felt extending subcutaneously from the external inguinal ring to the testicle. The testicle was easily removed.

Extra-uterine Pregnancy.

During the month of March I was requested by a man who called at my office to prescribe for a mare that, judging from his description of the case, was suffering from impaction of the bowels. He had given her a full dose of physic without results. He requested me to go and see her. The symptoms presented were those of impaction of the bowels. However, one prominent symptom usually absent in impaction was present in this case. While standing, she would lean to the right until she became unbalanced; this she repeated frequently. The mare was pregnant. Examination per rectum revealed nothing abnormal except the colon being distended and contents somewhat impacted. Examination per vagina revealed nothing except dark tenacious mucus about the os uteri. I administered a full dose of aloes, also left stimulants and nux vomica to be given. The second day after my visit the owner reported the mare was no better and that the purgative had not acted. I prepared a physic of raw linseed and croton oils, which he said he could

give her. I heard nothing more of the case until one day when I was driving by the man's home. He asked me to stop and take a look at the mare. At this time she was very unthrifty; and there was a large dropsical swelling on her breast and abdomen. He stated he was certain the mare had not dropped the colt; that she had carried it nearly two months over time. I told him it was very probable she had dropped it in the pasture. The pasture she was in contained much thicket and underbrush. He said he had hunted carefully over all the pasture and had not found it. The following winter I was called to see a sick mare about six miles from the above place. I asked the owner if Mr. So-and-so did not own the mare the previous winter; he replied he did. I then told him of the experience I had had with her. At this time she showed symptoms similar to those she had shown the previous winter. I told the owner she would die, as examination per rectum revealed what seemed to be a foal, or what was left of it. Examination per vagina revealed nothing abnormal. I requested the owner to make an examination after her death. He did, and reported the foal had grown outside the uterus.

A Live and a Dead Fœtus.

During the month of February I was called to attend a mare from which a part of the fœtal coverings were protruding. An examination revealed a dead fœtus and very putrid condition of part of the contents of the uterus. The dead fœtus was removed. On inserting my hand to remove retained afterbirth, I discovered another fœtus. Owing to the putrid condition of the membranes and the first fœtus, I did not hesitate to remove the second fœtus. I was somewhat surprised and much disappointed for having removed it, as it was alive; its heart beat for some time after it had lain on the floor.

Birth After Abortion.

In the same month (February), but not the same year, I was asked for information and treatment to prevent a mare from aborting. I told the owner that if the symptoms were as pronounced as he described them, nothing could be done. When he arrived home the mare had aborted. The following spring she gave birth to a normal foal.

Three Testicles in a Colt.

One spring I castrated a yearling colt, and early the next spring the owner stated the colt was becoming very trouble-

some; that he acted much like a stallion. He asked me if I knew why he was so? I replied I did not know. I told him that I had noticed recently an account in a veterinary magazine of a horse having three testicles and that the only solution of his case was that the colt had been similarly endowed by nature. The colt continued to become more troublesome, and I was requested to find the cause if possible. One could feel a small tumor high in the inguinal region. I told the owner that the enlargement was abnormal and that it no doubt was the cause of the trouble. He requested me to operate, and in doing so I found the enlargement to be about one-third the size of a normal testicle, almost spherical, attached about 1½ inches above the stump of the cord; its structure was much like that of a testicle.

RUPTURE OF THE ŒSOPHAGUS IN A HORSE.

By E. J. Carter, V. S., Pittsburg, Pa.

Called early Tuesday morning, Sept. 10th, to a large hauling stable to see a dappled gray horse, eight years old. The animal was said to be choking. Arriving at the stable, I found the stall full of saliva, it being discharged both from the mouth and nostrils. Pulse 50, temperature normal, respirations 40. He did not evince any pain on pressure of the laryngeal region, and I was somewhat mystified as to the cause of the trouble and unable to make a satisfactory diagnosis. The animal did not exhibit any pain; the only thing to be seen was the quickened respirations and the profuse discharge of saliva. I had the animal removed to a comfortable, well-ventilated box-stall, and used a counter-irritant in the region of the pharynx and larynx. I had a bucket of water placed in the manger, in which was dissolved one ounce of ground chlorate of potash; had all hay removed out of the stall and ordered thick oatmeal gruel. I returned at 5 P. M. to learn that the animal drank the water, but upon attempting to partake of the oatmeal gruel he would vomit it back again through his nostrils.

I gave him a few handfuls of dry oatmeal, which he swallowed, but it only reached a point in the œsophagus opposite the fourth cervical vertebra where it became lodged and made a tumor the size of a man's fist. He now exhibited distress, and commenced coughing, throwing up the oatmeal through his nostrils, the tumor immediately disappearing. I now offered him

water, which he drank, but this caused a swelling; but it passed onwards to the stomach. I now felt satisfied that I had here a rupture or some kind of a lesion of the œsophagus, and probably caused by the ingestion of some foreign body.

I saw the animal on the morning of the following day. He appeared much more tranquil and the respirations were reduced to 30, pulse normal. The enlargement of the neck would only appear when drinking or attempting to eat. I rubbed a blister over the seat of the passive tumor, and gave him oatmeal gruel, with chlorate of potash.

I saw him on the 12th, much in the same condition as on the previous day, and he refused to accept of any food, not even sliced apples, grass, or green corn.

On the morning of the 13th I was notified that the animal had died at 4 o'clock that morning.

I made a post-mortem a few hours later, but could not find anything abnormal, except on opening the œsophagus and at the point where the enlargement occurred, I found a rupture of the mucous membrane and a bare spot the size of a man's hand. The only covering left was the thin cuticle. I examined the stomach, expecting to find some foreign body, but not so. It was empty, except for a small quantity of the oatmeal gruel. All organs in the body appeared perfectly healthy.

What was the cause of the lesions found in my post-mortem?

A PECULIAR SYMPTOM IN A MARE.

By C. W. Lassen, M. D. V., Lake Forest, Ill.

I was called on the evening of July 1, 1907, to see a mare that was cast in her stall. On arriving, I found that they had succeeded in getting her up and out of the stall. The mare was a good sized Western horse, weighing about 1,050 lbs. She had put her head under the rope in her halter; she was tied in a single stall; and in trying to release herself had jumped up into the manger. The halter rope produced a mild burn in the groove behind the maxillary angle of the jaw on the right side. She was very weak and hung her head very low; breathing could be heard through the ear, producing a peculiar crackling sound. The tissues under the rope burn were infiltrated and crackled on pressure and very tender. A facial paralysis was noticed to be coming on the right side. One grain of strychnine sulphate was given hypodermatically and hot creolin compresses applied

to the poll. Patient was placed in a box-stall. Weakness progressed till she laid down. While lying down, her breathing was fast. In about 30 minutes she got up and drank some water and seemed very much stronger. In about two hours from the time of the accident she began to exhibit this peculiar symptom: She commenced to bite herself all over the left side of the body; in no one particular spot, but only on the left side. She did not paw with her front feet, neither did she kick with her hind ones. Her biting was so vicious that she bit all the hair off in several spots, making the skin raw. This apparent itching lasted for four hours, when it stopped as suddenly as it commenced.

The next morning she ate and drank fairly well, but the facial paralysis was now very well marked.

At the present date, Sept. 3, 1907, it is well marked, showing atrophy of the eyeball, etc. She eats and works fairly well. Patient had no fever at any time. Client on seeing her so well, put her to work two days after, saying that he had to work her as this was his busy season and he could not afford to lose her labor if she could pull a trace.

In inquiring into her past history, I found out that she was very irritable, the least little sore making her very nervous.

Was this a nervous irritation, or was it a case of generalized anæmia on the left side at the time of the accident, followed soon after by a congestion?

EXPERIENCES WITH IRISOL IN MANGE.

By B. K. Dow, V. S., Willimantic, Conn.

Having used Irisol with good results in various cases I determined to test its merits where several calves were infected with *Trichophyton tonsurans,* a form of ring-worm which manifests itself in elevated circular patches about the mouth, nose, eyes and ears, also along the top of the neck and down the shoulders in some cases. These spots or patches were denuded of hair, covered with a grayish crust which was thick and hard, and considerably elevated above the normal skin. This form of "mange" being of vegetable origin, highly infectious and difficult to eradicate, I decided to try Irisol, one ounce in seven ounces cotton seed oil. Thoroughly washed the spots with strong soap and water once only and applied the Irisol Oil every day, having it thoroughly rubbed into the skin. A change for the better was

noticed after the first application, scales and thickening began to disappear, itching stopped, in a few days the hair began to grow as naturally as ever, and in a short time the spots were entirely covered, making a perfect cure without any discomfort or danger to the animal or its mates.

This remedy being non-poisonous, if licked off, easily applied and very penetrating, makes it truly an ideal parasiticide. I shall endeavor to give the drug further trials in diseases of the skin.

A DELAYED CASE OF PARTURIENT PARESIS.

By J. H. KNOX, D. V. S., Forest Grove, Oregon.

On Aug. 25, 1907, I was called to a thoroughbred Jersey cow which had calved April 7, 1907, and found her displaying the characteristic symptoms of so-called milk fever. She showed weakness while being driven home from pasture and as soon as she reached the barn went down. I administered an hypodermic of strychnine, gr. j, and inflated the udder with air. In an hour she was resting easily. I repeated the strychnine in three hours, and left her for the night. In the morning she was up, and made an uneventful recovery.

The interest in this case is in the fact that the attack occurred eighteen weeks after calving.

THE ONTARIO VETERINARY COLLEGE opened its session on October 17, and although it inaugurated a three-year-course, it is stated that a large class of freshmen have entered.

AT Swan River, Manitoba, Canada, Sept. 5, Norman West pleaded guilty to having practised as a veterinary surgeon without the necessary license and was fined $30 and costs by Police Magistrate Lewis. The Veterinary Association of Manitoba conducted the prosecution.

ONE of the latest developments in the horse goods trade is a sleighbell trust. There are, or were, in the United States fifteen manufacturers, all of whom recently combined to lower the cost of production and raise the selling price. All but four of the factories have been closed, while a string of bells which formerly sold for $2 now sells at double this price.

ABSTRACTS FROM EXCHANGES.

GERMAN REVIEW.

By J. P. O'Leary, V. M. D., Bureau of Animal Industry, Buffalo, N. Y.

"Railroad Disease" in Cattle [*Prof. Schmidt*].—At a meeting of naturalists, held in Stuttgart, Prof. Schmidt, of Dresden, spoke on the pathogenesis and treatment of "railroad disease" in cattle, its great significance for dealers and official veterinarians. The disease appears in highly pregnant cows, particularly in those animals which have been let out early to pasture and immediately after and during extended transportation. It occurs almost exclusively in the months from April to September. The nourished condition of the animal plays no part whatever. The first symptoms are those of excitement and uneasiness, with the tail extended; crossing of the legs; laying down and frequently changing position. Then follows the stage of depression, the animal being unable to rise; the head is held in the position as if affected with parturient fever; the pupils dilated; the eyes dull, lifeless; the pulse returns to normal; breathing is costo-abdominal, arhythmic and more and more gurgling; the temperature remains within the physiological limit; appetite is lost; intestinal peristalsis is suppressed; constipation sets in; no desire to drink, or it may the contrary; the udder is filled to its capacity; no labor pains are observed. As a rule the urine is retained; it is usually stained a yellowish red, alkaline in reaction and rarely contains albumin. "Railroad disease," also deceitfully termed "railroad or traveling fever," and also called "*Pansenleere,*" is differentiated from parturient fever by its presence in grass cattle (the latter is peculiar to stall-fed cows); it attacks the animal, as a rule, when the journey by rail occupies more than a day to reach the destination, and ante-partum, peritonitis, rupture of the intestines and poisoning are also of importance for differential diagnosis. As the paralytic symptoms increase the animal usually dies in complete coma after 24 to 48 hours. In very few cases recovery ensues through birth during the sickness. Nevertheless, through timely and expert treatment, emergency slaughtering

and natural deaths have been rare. From the various views of former authors, who claim to have found the paunch empty and the muscles stained and alkaline in reaction, the author directs attention to the fact that such extraordinary lesions never came to his notice. No microscopical striations were perceptible only in the lumbar muscles. The other histological examinations were negative. The lymph glands, particularly those of the posterior portion of the body, were infiltrated, the udder hyperæmic, purely physiological manifestations of a highly pregnant animal; so that animals of this kind could be slaughtered in emergency cases and the meat sold in open market. The author maintains, in view of his wide experience, that it is impossible to make a muscle degeneration or an extraordinary emptiness or a concussion of the cord the cause of "railroad disease"; formerly he considered it was probably an autointoxication; latterly, however, he attributed the severe symptoms purely to a circulatory disturbance in the medulla oblongata and brain. Prof. Schmidt outlines the pathogenesis of the disease as follows: The great demand which through balancing and through the weight of the gravid uterus is placed upon the muscles, especially those of the posterior part of the body, through the motion of the car, a great amount of blood is called for in the muscles and spinal cord in addition to the great amount of blood already used by the gravid uterus, placenta and udder, and finally the perspiration and adaptation to the temperature in the skin in warm weather is the cause of the intense hyperæmia in all these parts. If to all this is added the fact that grazing cattle are unaccustomed to stall ventilation, the lack of drinking water and the increased secretions, is it to be wondered at that the brain and medulla oblongata are anæmic and their centers, especially their vascular centers disordered or abnormally excited? Hutyra and Marek coincide in this opinion, who deny an anæmia of the brain as an important etiological factor in "railroad disease," with the restriction, so long as the vaso-motor apparatus is unimpaired, for it is well known that pregnant women and cattle are frequently subjected to circulatory disturbances. Muscle degeneration is then of secondary importance. Regarding the treatment of this disease, it should be on the same principles that govern the treatment of parturient fever, that is, a heart sustaining remedy, chiefly the caffeine salts subcutaneously to counteract the depressing effect of the air infusion in the udder, which makes the former symptomatic curative methods needless. Prophylaxy—

avoid overloading of cattle in cars; give plenty of water to drink; an intervening rest during long periods of transportation and avoiding exposure to drafts of air. These latter are practically impossible; therefore practical prophylactic measures are at present unknown. Dr. Uebele, in discussing this subject, thought that aside from an anæmia of the brain and medulla oblongata, an auto-intoxication may have some essential bearing upon "railroad disease." Recently there has been observed in human practice an instantaneous disappearance of self-formed poisons in human eclampsia after delivery. In acceptation of an auto-intoxication we can readily understand the immediate curative effects of air infusion in the udder. [The translator is of the opinion that a similar disease has been observed by him in cows arriving at the Stock Yards, Buffalo, N. Y. These animals, likewise, had been subjected to long distance transportation by rail and were well advanced in pregnancy, more than probable within two weeks of calving. The symptoms observed in each case and classical history obtained were in accord with those described by Prof. Schmidt, of Dresden.]

Bacteria in the Healthy Tissues of the Body [*Selter-Bon*].—S. states that in the normal lung tissues spore-forming bacteria are frequently found together with pneumococci and other virulent bacteria. The intestinal bacteria can penetrate the macroscopically intact intestinal wall and gain the mesenteric lymph glands. Upon the impenetrability of the messenteric and other lymph glands depends the freedom of the blood from bacteria, likewise the liver, spleen and kidneys.—[*Deutsche Mediz. Wochenschrift No.* 47.]

The Effect of Formalin and Hydrogen Peroxide Upon Milk [*Dr. P. Baudine*].—The author takes up the task to test both those lauded preparations as preservative agents for milk and their behavior toward this article of food. (1) The behavior of the pepsin ferments toward milk mixed with varying quantities of formalin and hydrogen peroxide. (2) The effect of formalin and hydrogen peroxide upon the pre-existing soluble ferments in the milk. (3) The behavior of milk mixed with formalin and hydrogen peroxide toward the action of artificial ferments. (4) What quantities of these substances must be added to milk to obtain the practical advantage. As a result of these investigations the author publishes the following: (1) That formalin changes the milk to such an extent that it does

not react again upon the pepsin ferments. This change is the more perceptible the longer the disinfectant remains in contact with the milk and the larger the quantity used. However, milk treated with hydrogen peroxide reacts the same as normal milk on the pepsin ferments. (2) Both agents do not exhibit any recognizable influence upon the soluble ferments present in the milk. (3) In contradistinction from the hydrogen peroxide, formalin, even when added to the milk, in small quantities, hinders the proteolytic effect of the artificial ferments, pepsin, pancreatin considerably; and if used in large quantities brings about important changes in the hygenic and chemical properties in the rennet. (4) That formalin, added to milk in the proportion of 1-5,000 and 1-10,000, preserves the milk 6 to 12 days. Yet it is highly probable that the continued use of formalinized milk is harmful. (5) That hydrogen peroxide, in the proportion of 1-3 per cent., preserves milk 3 to 6 days; that milk thus preserved is in no way harmful.—[*Centralblatt für Bakt,* 41. *Bd., 2 Heft, page* 271.]

Regarding the Bacterial Content of Fish Meats [*Samuel Ulrich, Zürich*].—As a result of his scientific work the author arrives at the following conclusions: (1) The number of bacteria in raw fish meat is already considerable at normal temperature. Two groups are particularly represented; one which liquefies gelatine (proteus group), the other does not liquefy that media (coli group). The coli bacteria predominate in numbers and growth. (2) When fish is freshly bought and is prepared for cooking in the customary manner even then its meat is not sterile. It represents a favorable culture media for microörganisms. These bacteria increase enormously, particularly at higher temperatures. Both species mentioned under heading one are also found in cooked meat, and the proteus group being still less virulent than the coli bacteria. (3) After experimental feeding with the raw and cooked meat no perceptible difference regarding its virulence could be demonstrated. As a result of subcutaneous injection with the broth of the cooked meat the infected mice, rats and guinea pigs die as quickly as those which were infected with the washings of the raw meat. (4) As the microörganisms develop in the cooked meat, especially in very large numbers, particularly at high temperatures, it seems hazardous to eat fish meat in summer later than 24 hours after cooking.—[*Zeitsch. für Hygiene und Infectionskrank., Bd.* 53, *H. V.*]

ENGLISH REVIEW.

By Prof. A. LIAUTARD, M. D. V. M.

TRACHEAL ULCERATION IN GLANDERS [*W. Hunting, F. R. C. V. S.*].—In 1902 the author published statistics of the post-mortem lesions found in 1,000 cases of glanders. The figures showed that in 20 per cent. of these cases tracheal ulcerations existed, in most cases in conjunction with ulcerations of the nose and in a small number of the larynx. It was found in only 19 cases or 2 per cent. as the sole ulcerative lesion. In the whole thousand cases nodules were found in the lungs. Recently considerable numbers of horses have been killed on reaction to mallein. Among these reactors, which are generally killed within three days of being injected, it is found that not less than 8 per cent. on post-mortem reveal ulcerations of the trachea. Generally the ulcerations are small and few, varying from the size of a pear to a three-penny piece and numbering three or four. In some cases they may be as large as a shilling or they may be small and plentiful over a large extent of the trachea. Tracheal ulcerations must be accompanied by danger of infection and the danger increases as the lesion gives no sign of its existence by clinical signs. These cases of tracheal ulcerations deserve careful attention, and when on post-mortem one is found and traced back to the stable from which it came, there is always a plentiful crop of disease, as the result of its infection. There are reactors which are not killed immediately, and if 8 per cent. of them are suffering with tracheal ulceration, there is an unsuspected danger which demands the close and earnest attention of the sanitarian.—(*Veterinary Record.*)

PARTURIENT ECLAMPSIA IN THE COW [*Henry Taylor, F. R. C. V. S.*].—This is the record of three cases followed by recovery. *Case I.*—Cow calved about a week. Symptoms: Grinding of the teeth, frothing at the mouth and dribbling of saliva. Curious licking of one foreleg and gnawing of one fetlock. When moved, she staggered. Constantly rubbed her nose on the ground. Then she had convulsions, and during the spasms she turned three complete somersaults. Eyes bulging and staring. Pupil not dilated. Pulse and temperature not much disturbed. Treatment: Bromide of potassium for two days, and then extract of belladonna. Animal got well and has had calf since. *Case II.*—Cow had calved eight days, when she had a fit, followed by many others. Her eyes are staring and have a wild expression. When made to move she almost falls down. She

becomes very excited when medicines are given to her. Bromide of potassium and chloral brought her to. A week later while being taken to market to be sold, she becomes exhausted and has convulsions. Bromide pulls her through. After several months she became paralyzed and was slaughtered. *Case III.*—Had calved 15 days. She has a funny appearance, devouring the grass as if she was mad. Brought to the barn, she falls into a convulsion and drops into the manger, on her back with her four legs sticking in the air. She had another attack two days later after being milked. She had a good dose of linseed oil and a few doses of bromide and got well in four days.—(*Veterinary Record.*)

DIAPHRAGMATIC HERNIA [*L. E. W. Bevan, Govt. V. S.*].—A mule, aged 15 years, has had hard work, and one morning is found suffering with great abdominal pains. These were relieved with due treatment, but in the evening the symptoms returned with great acuteness. The pulse was hard but regular, the conjunctivæ spotted and very red, ears warm and legs cold. She had sweated a great deal. The breath was quite offensive and sour. She had spasms every half-hour and then would look towards her flank, make a violent effort and roll on her back, remaining in that position with her legs doubled up or spread in the air. She seemed to have relief only when in that position. She passed considerable wind and defecated. This condition lasted all day, but finally she died. The treatment had consisted in the administration of a bottle of salt and water, later a mild drench of creosote and æther. Epsom salt was also given and several rectal injections of soap and water. At the post-mortem there was found an old lesion of the diaphragm, consisting in an opening through the right half of the muscle on a level with the foramen dextrum and at the junction of the muscular and tendinous portions. Through the hole passed a loop of small intestine and a portion of the omentum, both of which carried lesions testifying to their long existence.—(*Veterinary Record.*)

A NEW SKIN PARASITE (LOUSE) OF SHEEP [*J. A. Gilruth, M. R. C. V. S.*].—This is the concise reference to a new variety of lice, *Hæmatopinus,* which so far has never been described in sheep, and which has been found in the South Sea Island and sent to the author, who is chief veterinarian and bacteriologist to the Government of New Zealand. Specimens of this parasite have been sent also to Prof. Neumann, who has

said: "It appears to be without doubt a new species. It is closely allied to *Hæmatopinus vituli, L.,* which lives on the ox, especially the calf, but it is certainly distinct in several characters." More about this parasite will be made known later on.—(*Veterinary Journal.*)

CASE OF PIROPLASMOSIS IN A PONY [*H. S. Allen, A. C. C.*].—A few lines relating the history of this pony, an eight-year-old Arab gelding, taken ill and dying after ten days of sickness. The parasites were found in blood smears on the day of its death. At post-mortem there were found old lesions of pleurisy, peritonitis and hepatitis. The liver was adherent to the diaphragm and weighed 15¼ pounds, the spleen 7½, the heart 9¼. Both the liver and spleen were cirrhotic; the heart somewhat in fatty degeneration. Both lungs were congested. Other organs healthy.—(*Veterinary Journal.*)

DEGENERATION OF THE SOLE WITH DESCENT OF THE PEDAL BONE [*R. Macgregor, M. R. C. V. S.*].—Black gelding picked up a nail in the centre of the outside of the frog in the *near* hind leg. The nail went in deep. The animal was in great pain. Three abscesses formed on the course of the extensor pedis tendon. After opening the animal seemed somewhat relived. After three weeks of tratment, he became very lame in the leg of the other side, the *off* hind. On examination it was found that the pedal bone was protruding right through the sole. The horse was destroyed. At post-mortem the lesion of the near leg was found healed.—(*Veterinary Journal.*)

ITALIAN REVIEW.

By Prof. A. LIAUTARD, M. D. V. M.

ŒSOPHAGEAL FISTULA IN A FOAL [*Dr. Felice Cinotti*].—A foal, 40 days old, received a kick on the left side of the jugular groove and about the middle of the neck. At first nothing seemed to result from the injury, but after a couple of days the swelling that had formed, as a consequence of the kick, broke and permitted the escape of a yellowish fluid mixed with milk. Brought to the clinic of the Veterinary School of Pisa, the diagnosis of œsophageal fistula was rendered evident, not only by the presence and the character of the wound of the neck, but also by the escape of milk, when the foal was allowed to suck his mother. The animal was cast and exploration made of the region by dissection on the tract of the œsophagus with a catheter introduced into it, revealed the presence of a laceration of the organ,

running obliquely from upwards downwards and from forwards backwards. It measured 3 centim. in length and had the borders irregular and necrotic. All the surrounding tissues were more or less diseased and infiltrated. Temporary intubation of the œsophagus, limiting the introduction of the tube only to the injured part, was resorted to. A red rubber tube being introduced with much care and difficulty, was secured with two strong points of suture after the extraction of the catheter, which demanded much attention. The animal was then allowed to rise, to suck, and, as no milk oozed out, the dressing was completed by a bandage and a muzzle applied to prevent the little fellow from eating the straw of its bedding. This did well for the first six days, but one night, although well watched, the whole dressing was disturbed, little fragments of straw bulged through the wound, the rubber tube was displaced and the cutaneous wound torn. Another intubation had to be resorted to. A much longer tube was introduced, secured more solidly with four sets of sutures and the wound outside of the œsophagus was closed tightly, muscles and skin. The four sutures held on well and came out in proper time, the outside wound healed well and recovery was perfect without symptoms of stenosis. The rubber tube was not found and had probably been expelled with the fæces.—(*Il Nuovo Ercolani.*)

FINE RECOVERY FROM PUERPERAL COLLAPSUS [*Dr. Ivo Ceschelli*].—Interesting because it shows that success may follow even with the worst cases. This cow had been suffering with parturient apoplexy for several hours and was in a state of coma. Her death was in fact expected by the owner, who had called the butcher to bleed her. However, the author asked to attempt treatment, and, being allowed, inflated the udder with air, using a pump as those used for bicycles. After some hygienic measures, the cow was left to herself, the owner being recommended to bleed her if improvement did not show itself soon. After a short time the animal was able to rise and to nurse her calf. Recovery went on without any trouble.—(*Giorn. della R. Soc. ed Academ. Veteri. Italiana.*)

ENORMOUS PURULENT AND GASEOUS COLLECTION IN THE GUTTURAL POUCHES OF A COLT [*Dr. Domenico Bernardini*].—A filly, aged eight months, has a swelling since she was four months old, which has considerably increased lately. Spread more on the left than on the right side, this swelling extends in the submaxillary space, forward in the sublingual region,

backwards to half the sides of the neck and goes up on both sides along the two parotids. It is not hot, nor painful, the skin over it is in normal condition and fluctuation indicates the presence of pus, while percussion reveals also that of gases in the guttural sacs. The animal is in good condition. There is no nasal discharge. The animal was prepared for operation, cast, and the pouch opened with a large trocar introduced in the center of Viborg's triangle. Over two and a half litres of pus, color of coffee and milk, with a slight rosy tint, was allowed to escape. A drain was applied and disinfecting injections recommended. This treatment was kept up for some time, but as the discharge did not seem to stop, another interference was indicated. The filly was again thrown down, the part freely exposed and a portion of the membrane of the sac was amputated, as well as all the surrounding infiltrated tissues. After two days of comparative improvement, symptoms of gangrenous broncho-pneumonia manifested themselves, and in two days death took place. At the post-mortem, besides the pulmonary lesions, a quantity of pus was still found in the two guttural pouches, principally in the left.—(*Clinica Veterinaria.*)

Ulcerative Rhinitis Simulating Glanders [*Dr. Luigi Cominotti*].—After recalling several instances of somewhat similar nature as recorded by various authors, the Doctor describes the case of a twelve-year-old horse, recently purchased, which had a muco-purulent and adherent discharge from the left nostril. This running forms a grayish crust, not striated with blood, although the horse was reported as having had epistaxis quite often. On the internal commissure of the nostril there is an ulcer about the size of a dime, circular, without elevated borders, not surrounded by indurated tissue. Again, on the external commissure there is another ulceration of the same aspect and nature. The pituitary membrane is congested and presents ecchymotic spots. The intermaxillary glands are swollen about as large as a potato, bosselated, not adherent to the bone. It is not very painful. There is no tendency to suppuration. The sinuses are cleared. Sero diagnosis and mallein tests remain negative, although repeated several times. Inoculations to dogs, guinea-pigs and donkeys were also negative. Microscopic examination of the scraping of the ulcers likewise. In the meantime the general condition of the animal improved and the ulcerations became cicatrized. In ten days the horse returned to his owner.—(*Clin. Veterinaria.*)

ARMY VETERINARY DEPARTMENT.

YE WEARY AND DOWNTRODDEN, MUSTER YE STRENGTH—AN EPISTLE FROM THE PHILIPPINES.

It is the habit of our regimental chaplain to encourage those who are in need of sympathy with an uplifting sentence of the Scriptures, and being his neighbor I have come to see the good they do. It has seemed to me for some months past that the above quotation fits the case of the U. S. Army veterinarian just now. Some letters received from colleagues on foreign service in Cuba and the Philippines are almost pitiful reading, and they voice a discontent that is ominous. They are particularly bitter about the insufficiency of our pay to meet the heavy expenses incurred by our periodical migrations. These writers are not only in need of sympathy, they are in need of help; they are too manly fellows to publicly complain about such a matter as pay, but it is somebody's duty to expound their cause. Of course, they are men with families and as our pay stands they have either to nearly starve themselves or go into debt. One of them says it is like "giving us a shrimp and squeezing out a lobster." Not so long ago one of our generals propounded the dictum that the lieutenants of the army should not marry unless they had private incomes. This would equally apply to the veterinarian because he is supposed to live as officers have to live, and this is doubly hard on our married men. I do not want to offend our few bachelor-veterinarians in the army, but I wish to say a good word for those that are married. I believe the latter are, on the whole, more respectable and valuable. They have acquired a strong sense of responsibility towards their families, and they exercise the same sense towards the Government in the strictest attention to duty. The old bachelor officer or veterinarian, on the other hand, is apt to be overbearing and conceited, and in certain directions he is ten times more of a nuisance than an old maid. Sorry, indeed, would be the day when our lieutenants and veterinarians should be ordered into celibacy. This may be economical for Royal armies, but a Republic should pay

for value received, which is not done in the case of the veterinarian. He is the lowest paid of any representative of the professions that are needed in the army; the surgeons, the chaplains, even the dentists, who are novices in the army, start in with the pay and allowances of a first lieutenant, whereas the veterinarian, who has served the army since 1863, still remains on the pay-list as a second lieutenant and is always the last when allowances, such as quarters, are to be distributed. If there are none left, as sometimes happens, he simply has no abode; if he is a bachelor he may bunk in with a hospitable youngster among the lieutenants, but if he is married no such hospitality can be extended to him and then there come the tears of the poor little wife children. These conditions cannot be argued away by explanations, as is sometimes attempted to smooth things over; they should be mended by action, which must come from ourselves.

What are we doing towards this end? We here in the Philippines naturally hoped that our colleagues in the States would set the wheel again in motion, as the distance is too great for our active coöperation. We say, as all others have said before us when on duty here: "We shall agree with all that you may do, but do it." Yet here I have a letter from one of us just returned to the homeland; he is a great, big, good-natured fellow with a perpetual smile on his face, a hard-worker and sturdy man. Certainly, he is not a pessimist, but he writes: "I have not been able to find anyone doing any work for the coming session of Congress. In fact, there seems to be a good deal of discouragement among the army veterinarians here in the States."

Discouragement—we should not know such a word. Our little bill has failed to pass Congress, and it is our privilege and duty to try it again and try it better. We all know what we need, and even the youngest among us know now what we cannot get. What we need to properly fulfill our professional duties in the army is:

(1) A veterinary organization, however small, with one of our good men as a chief veterinarian and guiding head. This was stricken out from our bill.

(2) Rank or grade in order that our recommendations to our superior officers may have some weight, and our directions to our subordinates be enforced. This was stricken from our bill.

(3) More pay and greater allowances to enable us to pay our bills and have a roof over our heads for the protection from inclement weather; we asked in our bill that this be given to us after five years of service, but it was changed to ten years of service.

(4) The assurance that when maimed or crippled by the tools of warfare, or by military manœuvres or hard garrison toil in time of peace, or when incapacitated by old age, that we be allowed to end our days humbly and peacefully on a small retirement pay. Thank Heaven, this was promised as far as the aged men are concerned, but it seems doubtful if it may properly extend to younger men who may be disabled.

(5) Constant self-improvement in our professional accomplishments; to prove our faith we recommended that we be again examined in order to obtain a promotion which would secure to us $8.33 per month additional pay. This was sanctioned, a discharge-clause added for those that may fail, and exemption from examination granted for those of over fifteen years of faithful service.

It would be disrespectful, and a waste of time besides, to argue here for the points for the bill stricken out by the General Staff. Our side of the argument has never yet been heard at the proper place, nor will it ever be listened to until we have a chief veterinarian who by a thorough knowledge of military life and by a broad-minded conception of matters veterinary in army organization will have won the confidence of the War Department. This day is a long way off.

Prudence dictates, therefore, that we drop points 1 and 2 of our original bill in order not to irritate, and liberality suggests that we acknowledge the good-will shown in our behalf in drafting for us a new bill which, after all, exhibits a vast improvement over our present status.

Personally, I believe that it would be to the best of our interest to adhere to a broad-minded policy in our action for next Congress and abstain from suggesting amendments or even small corrections. If there is anything radically wrong —from our viewpoint—it would be less irksome and offensive to ask for an entire new section of the bill. I believe the bill is radically wrong in the *matter of pay alone,* and we should try to have an entire new section substituted. It will be remembered that when we drafted our original bill in 1904, some of us suggested to ask for the pay and allowances of a first

lieutenant, mounted, on entering the service, and for the pay and allowances of captain, mounted, after ten years of service. However, the younger men among us wanted rank above all else, and being greatly in the majority we came down again "in rank" to that unlucky precedent in our status—a second lieutenant. Even those new in service have now learned that we cannot get the rank, and may I remark at this time that the rank of a second lieutenant is absolutely undesirable for a veterinarian of ripe years, because it is the lowest rank given only to a youngster because of his limited experience and undeveloped manhood. In general, our older veterinarians of to-day can command a more ready hearing at the Regimental Headquarters than the lieutenants and even the younger captains can, so that it would be going down-hill instead of uphill should we be compelled to accept the rank of a second lieutenant. But it has become a grave question if the pay and allowances of a second lieutenant are equal to the expenditures demanded of us. Leaving out of consideration the tax to which we are subjected in constant movements, sufficiently referred to above, let us look at our expenses to procure and maintain our equipments. It takes about $600 to purchase our uniforms, personal equipments and horse equipments, and it takes about $300 more to purchase two horses, one saddle-horse and one pack-horse. To this we must add the monthly expenditures for hire of a horse-striker, repairs, etc., which sum up to about $150 a year at a low figure. I have once personally complied with all these requirements according to army regulations and orders, and I know that it cannot be done at our salary of $125 per month. Nobody will admit that the salary of a first lieutenant, mounted ($133.33), is a princely income, but most of us may look at the salary of a captain, mounted, ($166.67), as the first scale of pay in the army that is at all commensurate with our expenditures and a fair interest on the investment made when we paid for our professional education at the college and the university to properly equip ourselves for the scientific life-work of a veterinarian.

I would suggest, therefore, that our army colleagues at Fort Riley, constituting our legislative committee, prepare a new petition to the War Department setting forth the absolute necessity of increased pay as recommended above; that they secure the consent of the army veterinarians serving in the States, and forward this petition in time for the deliberations

of the proper military authorities before the meeting of next Congress. Do not be influenced by the possible introduction of the Dick-Capron Bill.

The advantages accruing from a better pay would be greater than it may appear at first sight; it would do away with the worry about the daily bread and salt, a condition that breeds discontent, and that makes our army men look with envy upon the better-paid veterinarians in civil life; it would silence the often-heard threats to resign from the army when such colleagues should put their whole soul into the future development of our veterinary service. And above all, the increased pay of a first lieutenant and captain, even without rank, would give us a better standing in the army, for American men and women, in and out of the army, acknowledge intuitively income above mere authority.

This much to-day. In another letter, shortly to follow, recommendations will be made in regard to other pressing matters that should no longer be postponed, but they do not necessitate legislative action by Congress.

OLOF SCHWARZKOPP.

Camp Stotsenburg, P. I., Aug. 12, 1907.

ARMY PERSONALS.

VETERINARIANS NOCKOLDS AND PICK, 1st Cavalry, have been ordered to the Philippines for service at Camp Stotsenberg, where they will arrive in January, 1908. Dr. Schwarzkopf, who has been on duty there, will return to the States and be stationed at Fort Clark, Texas. He is already getting material in hand for a paper for the 1908 meeting of the A. V. M. A. on the almost virgin subject of "Veterinary History."

VETERINARIAN HANVEY, 6th Cavalry, en route to the Philippines, paid a visit to "Honolulu Bill" Monsarrat, and, as is proverbial, he was royally entertained. A veterinarian passing through Hawaii without calling on Monsarrat will have to explain his conduct. He is one of the "show places" of the Sandwich Islands.

BRAYTON H. RANSOM, chief of the zoological division of the Bureau of Animal Industry, is the author of Circular 116, entitled "Notes on Parasite Nematodes, Including Descriptions of New Genera and Species, and Observations on Life Histories."

THE MONTANA SMOKE CASE.

An important point in the celebrated suit of the stockmen of the Deer Lodge Valley, Montana, against the mine owners for the recovery of damages to live stock alleged to have been caused by arsenic deposited upon the grasses, hay and grain of that region through the smoke from the smelters, has been reached in the report of Master in Chancery Crane to the Federal Court. The Master reviewed the case *in extenso,* and we find the following synopsis of his conclusions in the *Anaconda Standard* of October 6:

A concluding paragraph in the findings of Master in Chancery Crane says that the damages sustained by the Deer Lodge farmers represented in the smoke case, if the smelter were closed, would be "greater than the damage they would sustain by the continuance of the smelter as the same is now operating." In its opening paragraphs the report gives the history of the litigation, the story of the Bliss property, and the way in which the association of Deer Lodge farmers came into the case. It sketches the history of the smelting plant in Anaconda. It observes that some of the farmers were in the valley 20 years before the smelting plant was started, and during that 20 years there was no complaint from the ranchmen. It reviews the development of the mining operations in Butte which resulted in the building of the smelter in Anaconda, and it describes the efforts of the owners of the Washoe smelter to spare the adjacent valley from damage, by the construction of the great stack and its flues. It is recited that the Washoe company endeavored, regardless of expense, to render the smoke harmless; that the steps thus taken are far more extensive than those in any other smelter in existence, that the smoke was thus rendered less harmful than formerly, that the sulphur is not doing injury, that the arsenic is working injury to the soil and crops and live stock in the valley. The losses sustained by Bliss, the plaintiff, are stated. It is added that if the smelter operations are continued, damage will be done in sections of Deer Lodge Valley which would be of recurrence and difficult to compute, and that, except in former instances, to which reference is made, the defendants have not paid damages, and they refuse to pay. The general character of the valley land involved is described as not first-class, and the farming of it is spoken of

as not proper in many respects. The growth of the city of Anaconda is sketched, figures are given in illustration of the capital it represents, and the large part the smelter plays in the life of the business of the city is set forth. The money represented in the smelting plant is mentioned. It is found that a site better adapted to smelter work, within easy reach of the Butte mines, could not be found, that years would be required for a transfer, that the suspension of work in Anaconda and in Butte thus entailed would be vast, that the processes now used are the best known in the metallurgical world. Salient figures representing wealth, population and industry in Butte are given in detail, and the statement made that the closing of the Anaconda smelter would involve the cessation of two-thirds of the mining operations in Butte. Many statistics are quoted respecting payrolls, products and the like. It is found that the corporations involved pay more than 50 per cent. of the taxes in Deer Lodge County and about 30 per cent. of the taxes in Silver Bow; that the suspension of the smelter would impoverish, if not wipe out, both counties, that the two counties contribute about 30 per cent. of the taxes for state purposes, and that the depreciation involved would seriously impair the state's revenues. The twenty-ninth finding is that the closing of the smelter would work destruction and irreparable injury to the complainant and to others owning property in the Deer Lodge Valley, and that damages which would be so sustained by these owners in the valley, namely, the complainant and others, would be greatly in excess of the damage they would sustain by reason of the continuance of the said smelter as now operated, and that the closing down of the Butte mines, which would be caused by the cessation of operations at the Washoe smelter, would cause an irreparable injury to the farmers of the Deer Lodge Valley, by loss of their only remaining near market. It is found that the defendants in this case are "solvent and able to pay and respond for all damages which have been, or may be, sustained by property from the operations of the said Washoe smelter."

* * *

Some of the points in the findings are as follows:

That the arsenic, in its various forms, so as aforesaid set free and discharged into the atmosphere, from said smelting plant, has been and is now being carried by the winds and air currents over and above and upon an indeterminate portion of the Deer

Lodge Valley adjacent to the said smelter, including lands and premises owned by the said complainant, and hereinbefore described, depositing at times sufficient quantities of arsenic on the hay, grasses and fodders growing thereon to injuriously effect and poison the live stock which eat of said hay, grasses and fodders, and feed at large on the pastures and ranges thereof, causing numbers of said live stock so poisoned to sicken and some to die from the effects of said poison, so that that portion of the Deer Lodge Valley thus effected is rendered thereby less profitable and less valuable for stock raising, grazing and farming purposes, and the hay and other fodders grown thereon rendered less salable and less wholesome for feeding to any animals than otherwise would be, so long as the defendants continue in the operation of said smelter in the reduction and treatment of said ores as aforesaid, to discharge into the atmosphere such qantities of arsenic as they have been and are now so discharging from their said smelting plant.

* * *

That by reason of the defendants operating the said Washoe smelter since remodeling the same, and so as aforesaid causing to be emitted from the smokestack of said smelter into the atmosphere such quantities of arsenic in various forms, with the result therefrom as aforesaid, the complainant has suffered special damage and injury in the sum of $350, the same being the actual loss suffered by him in the depreciation of the rental value of the said land and premises, so caused by the said defendants, during the period mentioned.

* * *

That the said Washoe smelter is situate contiguous to an extensive farming and grazing neighborhood lying in said Deer Lodge Valley, which is inhabited by a large number of farmers and ranchmen who own or possess many thousands of acres of improved and unimproved farming and grazing lands, and who reside upon said lands as their homes and keep a large amount of live stock, horses, cattle and sheep, thereon, and follow and pursue farming, dairying and live-stock raising as a means of livelihood; that said farmers and ranchmen constitute a large farming and grazing neighborhood, and the said arsenical fumes so as aforesaid emitted from said smelter more or less affect injuriously all of said lands, and all of said farmers and ranchmen are, more or less, similarly situated as said complainant and are,

more or less, similarly injuriously affected by the said arsenical fumes emitted from said smelting plant.

* * *

That if the said defendants continue to operate the said Washoe smelter as heretofore, the said noxious arsenical emanations therefrom will continue to be precipitated and deposited at times upon the forage crops grown upon the sections of the Deer Lodge Valley heretofore mentioned, including the premises of the complainant, thereby poisoning more or less all such future crops of said lands and rendering the same noxious and unwholesome food for live stock to the damage of said farmers and ranchmen; that each year and each crop season will bring new causes of action in favor of said farmers and ranchmen and against said defendants by reason of loss due to the thereby lessened value of said crops and the sickness and destruction of live stock consequent upon their eating and ingesting the same, all of which will cause a multiplicity of suits in order to collect damages, which said damages will be difficult of proper computation. That if said smelter close operations the said farms and the farm of complainant, in the course of one year after said poisonous substance should cease to be precipitated thereon would be restored to their normal and natural condition.

* * *

That many of the said farmers and ranchmen have settled upon and own the lands injuriously affected by the said smelter fumes in the Deer Lodge Valley prior to the year 1870, and have continuously been residents thereon up to and including the present time, and long prior to the conducting of any smelter plant in the said region.

* * *

That there is and has been at all times during the periods of operations of the said Washoe smelter an excessive and abnormal amount of sickness and some deaths among the animals feeding and grazing upon the hay, grasses, vegetation and pasturage growing upon the said injuriously affected portion of the Deer Lodge Valley, to-wit, horses, cattle and sheep, said death and sickness being due to arsenical poisoning, caused by the arsenic in various forms in the fumes emitted from said Washoe smelter and precipitated and deposited on said growing pasturage and afterwards eaten and ingested by said animals.

That the said defendants or either of them have not paid any damage which the said farmers and ranchmen have sustained, as aforesaid, by reason of the operation of said Washoe smelting plant since the remodeling of same and the building of said large stack, and the said defendants have at all times and do now refuse to pay any damage which has resulted from the operation of said Washoe smelting plant since July, 1903.

CORRESPONDENCE.

QUESTIONS UPON RABIES.

159 E. BENEFIT ST., PROVIDENCE, R. I., October 7, 1907.

Editors and Collaborators of American Veterinary Review:

DEAR SIRS:—Rabies is again afflicting Providence and I am searching for information on the subject and know of no better place to find light than in your columns. If not too much trouble I would like a personal letter so I can present it to the R. I. V. M. A., which meets this month. I desire to correspond with anyone who has investigated the subject and will be pleased to receive names of investigators and literature on the subject. That the answers may facilitate matters I have put my inquiries in the form of questions. Thanking you in advance, I am

Very truly yours,

JOHN A. MCLAUGHLIN.

* * *

QUESTIONS ON RABIES.

Have you ever seen a case of rabies in the living dog?

What ante mortem proof have you of rabies in dog?

Are the negri bodies alone diagnostic of rabies?

How can you prove the negri bodies are diagnostic of rabies?

Are dumb and furious rabies one and the same disease?

Are negri bodies always found in dumb rabies?

Who diagnosed rabies in the living dog for Pasteur or any other investigator?

Before the negri bodies were discovered in 1903 was it possible to diagnose rabies by microscope?

If it was, what advantage have the negri bodies over the old method?

What proof is there that any individual in the past, or in the present, was or is capable of diagnosing rabies in the living dog?

BIBLIOGRAPHY.

TRYPANOSOMES AND TRYPANOSOMIASIS. By A. Laveran, Member de l'Institut, et de Academie de Médecine, Paris, and F. Mesnil, Chef de Laboratorie a l'Institut Pasteur. Translated and much enlarged by David Nabarro, Member of the Royal College of Physicians, London, etc. With colored plate and 81 figures in the text. Chicago: W. T. Keener & Co., 90 Wabash Ave. 1907.

The revolution created by the discovery and rapid development of the trypanosomes and trypanosomiasis has made it imperative that every veterinarian and physician shall be familiar with the subject. Particularly has the invasion of civilization into the tropical countries stimulated medical science to unravel the mysterious diseases which had cursed these regions and retarded their progress. In the majority of instances the trypanosomes, in one form or another, were found to be the real infective agent, and a study of their habits and modes of infection is gradually bringing them under the control of medical science.

Among the first to devote their time and energy to their study were Laveran and Mesnil, and some three or four years ago they published the first edition of "Trypanosomes and Trypanosomiasis." It contained all that was known at the time and at once became an authoritative guide to those who, in most all countries, began the study of the important subject. Since then the field has greatly expanded, and the present volume, translated and enlarged by Prof. Nabarro, bears but little resemblance to the original work, so great have been the additions and embellishments.

To all who wish to bring their knowledge upon this subject up to date this book is the only means, and the efforts of the authors and publishers will no doubt be fully appreciated. The price is $7.50 net and can be obtained from Messrs. Keener & Co.

STRANGEWAY'S VETERINARY ANATOMY. Eighth Edition, Revised and Edited by I. Vaughan, F. L. S., F. Z. S., Fellow of and Examiner on Comparative Anatomy to the Royal College of Veterinary Surgeons, etc. Chicago: W. T. Keener & Co. 1907.

We have received from the publishers a copy of this well-known text book, which has been an authority upon anatomy for more years than the writer of this acknowledgment can remember. Endorsed by all faculties, whether they give preference to Strangeway's or Chauveau's nomenclature, no words of ours could add to or detract from its position in the education of the student. The simple announcement that Messrs. Keener & Co. have brought out a new edition, with a thorough overhauling by Prof. Vaughan, is quite sufficient.

OBITUARY.

THEODORE K. VERY, V. S.

This well-known veterinarian died at his home in Boston rather suddenly in September. He belonged to the "old guard," and in the early days of the profession in this country was a strong factor in its building. He was a pupil of Dr. George H. Dadd, who had a few veterinary students in Boston some fifty or more years ago. He was an early member of the United States Veterinary Medical Association, having joined that organization in 1872 and remained an active member for twenty-six years, during which time he was a conscientious worker for its best interests. He was a colleague of Drs. J. H. Stickney, E. F. Thayer, the Drs. Saunders, William and Robert Wood. In his prime he conducted a large practice, and at different times in his career had been very well-to-do financially. He invented several mechanical appliances, from which he derived considerable income, and for a long time conducted an extensive shoeing forge, which paid him well. The only official position held by Dr. Very was that of veterinarian to the Board of Health of the City of Boston, or at least he was employed by the board for many years to inspect glandered horses. Of recent years his health had been very poor, his investments disastrous and his good wife an invalid. In the face of such adversity, however, he exhibited great courage, and it is said that no person ever heard him complain.

JOHN A. MADDEN, D. V. M.

Dr. John A. Madden, of Bozeman, Montana, died suddenly on September 18. He had not been in good health for the past year and had been confined to his bed for a few days, but seemed to be improving, when he grew suddenly worse and died in a few hours. The cause of death was œdema of the lungs.

Dr. J. A. Madden was 31 years of age and was born in Massachusetts. His early education was secured at country schools, and later he attended the Mt. Herman Preparatory School at Mt. Herman, Mass., for three years and a half, taking

the scientific course. He later attended the New York State Veterinary College, Cornell University, for three years, graduating in the class of 1904. After graduating from Cornell he was employed as Federal Meat Inspector, being stationed at St. Louis, Mo., and Troutdale and Portland, Oregon.

He went to Bozeman April 5, 1906, to enter into partnership with Dr. H. C. Gardiner and take care of Dr. Gardiner's practice while he was away. He remained with Dr. Gardiner up to July 5 of this year, when the partnership was dissolved. He held the offices of State Sheep Inspector, Deputy State Veterinarian, State Fruit Inspector and Meat and Milk Inspector of the City of Bozeman. He had one sister, Mrs. Nellie Madden, of Boston, but no other near relatives so far as can be learned from his friends in Bozeman. He was a member of the Elks lodge of Bozeman, and all arrangements were made by the members of that order.

F. R. PATTERSON, D. V. S.

The body of Dr. Patterson was received at Grand Rapids, Mich, the middle of October, from Butte City, Mont., where he died a few days previously from cancer of the stomach. He graduated from the Grand Rapids College in its early days and practiced in that city for some time, removing to Butte City about three years ago, where he became veterinarian to a construction camp. He is survived by a widow.

THE story is going the rounds of the lay press that a dog traveled 300 miles to Chicago in search of his mistress, and among the 2,000,000 population of the Windy City had no difficulty in locating his friend. This item was probably originated by one of those "nature fakers" whom the President recently castigated.

WORD is received that the total enrollment at the Kansas City Veterinary College has reached the 450 mark notwithstanding that many applicants were rejected on account of deficiency in preliminary education and others on account of the lateness of their applications. This appears to be the record attendance in America.

SOCIETY MEETINGS.

NEW YORK STATE VETERINARY MEDICAL SOCIETY.

The eighteenth annual meeting convened in the Academy of Medicine, 17 West Forty-third street, New York City, on Tuesday, September 24, the Society being called to order at 11 A. M. by President W. L. Williams, with Secretary Garry T. Stone recording. The president stated that the delay in opening the meeting had been occasioned by the non-arrival of the Secretary's papers, but as they were momentarily expected he thought it best to open the session. President Roscoe R. Bell, of the Veterinary Medical Association of New York City, then, upon behalf of the city organization, welcomed the State Society to Gotham and gave a brief outline of the arrangements that had been made for their accommodation and entertainment. President Williams fittingly responded and then proceeded to read his excellent annual address, as follows:

PRESIDENT WILLIAMS' ADDRESS.

"In the fulfillment of my duty to you as president our constitution demands that I should at this time submit, as an annual address, a review of the status of our profession, especially within the state, and to make such recommendations for your consideration as may seem prudent.

"In general we may report the condition of the profession as excellent, that at no prior time in our history have veterinarians been so prosperous, nor have the ideals of the profession ever been so high.

"During the period from September 9 to 13, inclusive, the American Veterinary Medical Association and the closely related Association of Veterinary Faculties and Examining Boards of North America, were in session at Kansas City, and, in some respects, they were by far the most notable in the history of veterinary science in America. The attendance greatly surpassed that of any prior convention, but that alone had no great significance.

"The most distinctive feature of the convention throughout was the universal sentiment in favor of higher and better veterinary education and served as a great inspiration to everyone having the advancement of the profession at heart.

"The presidential address of Prof. Law was a passionate appeal for distinct advances in teaching and practice; the report of the Committee on Intelligence and Education by Prof. Pearson was a powerful plea for better veterinary colleges in point of buildings, equipments, materials and faculties, while the address of your president urged the necessity for advancement in the requirements for the matriculation of veterinary students. Other addresses, resolutions and actions of the convention participated in the well-nigh universal plea for higher professional ideals and the meetings throughout served as an inspiration for a better profession.

"It has a double significance for the veterinary profession in the State of New York, for, not only do the members of the profession in the state, as a body, favor higher and better education, but the state came boldly forward and, by statute, placed veterinary education upon a higher plane than obtained elsewhere in America, so that we now have, and long have had, the strictest requirements for admission to practice of any state on the continent.

"The wisdom of the State of New York has been seriously questioned by many and it has certainly been accompanied by some friction and regrettable results, though, on the whole, the effects of the law have been salutary.

"The statutes directed that, beginning with 1896, matriculants entering veterinary colleges should have 48 Regents counts and the application of this rule well nigh caused desertion of the veterinary colleges, and so disastrous was the result that the requirements were temporarily reduced to 24 counts, and the original demand was not restored until 1905, when it was found that nearly four times as many men entered in the State College as had done under similar requirements nine years before, while in 1906 the entering class was approximately double that of 1905 and larger than in 1897 or 1898 under the rule requiring half the amount of preparatory education. It would, therefore, appear that the advance in preparatory education has proven wise and has become permanently and irrevocably established and that the state and the veterinary profession are the better for it.

"In our annual address last year (AMERICAN VETERINARY REVIEW, October, 1906, Volume XXX., page 869) we had occasion to point out certain undesirable conditions accompanying the application of our state licensing laws, the principal feature of which was the wholesale violations of them by the great number of men who were practicing as veterinarians without license. The year has brought no changes in this respect except, possibly, that the number of matriculants in veterinary schools has increased, and thereby the future aspect is rendered clearer and more assuring.

"We, in that address, divided the violators of the license law into the following six classes:

"I. Veterinary graduates ineligible to take the state license examination and practicing in open defiance of the law.

"II. Veterinary graduates of the same educational qualifications as Class I, practicing as "manager" or "assistant" under the name of a licensed veterinarian but outside his territory or actual supervision and probably paying tribute to the licensed protector.

"III. Veterinary graduates of the same qualifications as Class I, directly employed by licensed practitioners as assistants at a salary and performing all the functions of a qualified veterinarian, including the making of calls and prescribing.

"IV. Non-graduates, such as stablemen, employed by licensed veterinarians, sent out to perform the ordinary duties devolving upon veterinarians, making calls, examinations and prescribing.

"V. Veterinary graduates eligible to enter the examinations of the board and who have taken them, but enter upon practice before receiving the state license or having official information that they have succeeded in passing.

"VI. Undergraduate students working for a nominal sum during vacation under a practitioner who introduces them as "doctor" to his clients and sends them out to answer general calls and perform the functions of a veterinarian without immediate supervision.

"It was then asked which of these six classes of violators should be prosecuted and which allowed to go exempt. But to one query the society made no reply. As in the first year of the present administration so during the past one, no prosecutions of illegal practitioners have occurred and, although the present law has now been in force for more than ten years, the records

of this society, so far as can be found, relate no case of prosecuting, although we are all fully aware that the violations are numerous under each of the six classes enumerated. It is essential that we repeat the opinion, expressed a year ago, that those charged with prosecutions for illegal practice must first be armed with directions from this body, which of these violators to prosecute and which to let alone. So far as we are aware there has not yet been a day since the enactment of the law but that uniform prosecution of *all* offenders would have involved directly or indirectly one or another of the high officers of this society, members of the State Veterinary Examining Board or of the Prosecuting Committee itself. Under such conditions successful prosecution of violators of the law is impracticable. The first essential in the problem of prosecutions is to gather together a body of men ready to conduct these, none of whom are themselves in violation of the law. If the New York State Veterinary Medical Society is to successfully prosecute illegal veterinary practitioners it should begin by securing the resignation of each member who is himself violating the law by employing or protecting some one illegally practicing.

"There are other things which are more important than the prosecution of illegal veterinary practitioners. It is of vastly greater importance that we secure an ample number of *legal* and efficient practitioners. If we had these the prosecution of illegal practitioners would be comparatively simple; without these their prosecution is impracticable; but ultimately the people will demand veterinary service of some kind and they will get it in some way. If we have very high requirements fewer candidates will succeed and hence fewer veterinarians will be licensed; if lower requirements prevail more men will be enabled to practice legally. The greater the number of legal practitioners in the present state of veterinary education in America the fewer will be the illegal practitioners, and *vice versa,* the fewer the legal the more illegal men.

"The opinion was ventured in last year's address that the State of New York contained more illegal veterinary practitioners than any other state. No data have come to hand during the past year to change that conclusion. Some hearers regarded the statement as pessimistic but it was not so intended. It is equally true that New York has more legal veterinarians to-day of high academic and professional education than any other state. It should further be remembered that a large proportion of our ille-

gal practitioners are just as good as the legal practitioners of other states. We have, entering the state each year, graduates from the colleges in Chicago and Toronto, who are generally barred from our state examinations, but they are just as efficient as practitioners as though they began practicing in other states where they would be legalized, or as they would be in this state in case the laws recognized them as legal practitioners. To assert, therefore, that New York has more illegal veterinary practitioners than any other state is not equivalent to stating that it has the poorest veterinarians.

" In the annual address of a year ago it was pointed out that the number of new licensees who actually enter and remain in practice in the state is approximately 25 per cent. of the required number for maintaining the existing number of veterinary practitioners. The deficit is largely made up from the ranks of illegal men. In other words, the teaching colleges of the state need to graduate about four times as many men each year as they have done during the past in order to keep the ranks of practitioners filled with competent and legal men. The problem is similar in all states. In states where no laws exist the veterinary service is poorer than in those having regulations. The difficulty with the veterinary service in America to-day is not with too stringent or too lax laws, but with the veterinary colleges and other educational agencies through which too few competent men are made available for practice. Colleges which turn out inefficient men contribute nothing thereby toward the establishment of adequate veterinary service. It is impossible to put enough incompetent veterinarians into a community to establish a good veterinary service. In order to finally reform the veterinary service we need first supply an ample number of competent veterinarians and then eliminate the inferior practitioners. In America there has been an attempt first to eliminate the incompetent veterinarians and then to fill the vacancies with competent ones. In a large measure the placing in practice of competent veterinarians eliminates the incompetent men. The live stock owner usually recognizes the difference between the competent and incompetent and prefers the former, eliminating the latter through refusing him patronage.

" Veterinarians are largely interested in the problem of how we may increase the number of efficient veterinarians and decrease the inefficient. Of the men who have been legally licensed to practice in the state since 1906 a large proportion have at-

tempted practice for a time and have then abandoned it for other lines or callings. Partly this abandonment has been due to the issuance of licenses to men who were really incompetent to render at once an efficient service, leading the practitioner to give up the effort and accept a fixed salary in civil service or elsewhere. Some who have remained in practice for a number of years are not successful, are not competent. No law can insure the competency of a veterinary practitioner, no examination yet devised by examining boards of teachers has served to separate the efficient from the incompetent. The efficiency of a veterinary practitioner must be determined by the actual test of practice, and, in a large number of instances, the beginner becomes disheartened before he has really given himself a fair trial and deserts practice for civil service when patience and zeal would have brought him success.

"This suggests that our men, when licensed, are not sufficiently prepared to begin a successful career when they enter practice and, in turn, intimates that the teaching colleges are not doing their duty. Such, we believe, is the frank admission of every competent veterinary teacher. No man can be properly prepared for veterinary practice in three years of six to nine months each, however high his preparatory training or excellent his college course. If young men leaving college are to become successful practitioners they need graduate with such complete and practical knowledge that they may at once render efficient service. As it now stands the licensee has but a dim outline of practice and needs acquire practical efficiency after being licensed instead of before. Our greatest need, in order to secure efficient, is more efficient veterinary education. Our colleges should be better equipped and better manned while our laboratory and especially our clinical teaching should be revolutionized.

"One of the most important elements in the veterinary practice laws of New York is the State Board of Veterinary Examiners. The New York law differs in important respects from most if not all practice laws in other states, especially in the relations existing between the New York State Board of Veterinary Examiners and the Department of Education. In a peculiar degree the association is responsible for the character of the board, its members being nominated by the society, but, while the responsibility largely continues, the powers of the society essentially cease when the board has been nominated. The

first laws upon any subject are liable to be defective and, after observation and trial, to need amendment, and I wish briefly to draw attention to some defects in our statutes and their application which, in my judgment, call for correction, especially in relation to our State Board of Veterinary Examiners.

"I. The method of selecting this board is perilous and the danger is intensified by carelessness on the part of our members. Three years ago, virtually without notice, we were called upon at our meeting in Brooklyn to nominate ten men from amongst whom the Department of Education was to select a board of five examiners, each to serve for a term of five years. In that meeting but few members were present, a number were excluded from the eligible list because they were engaged in teaching and others were disqualified because they had not yet been in practice in the state for the statutory five years, so that a majority of the eligible members present were nominated. Evidently the large number of nominees demanded restricted the choice very greatly and also tended to diminish the feeling of responsibility on the part of the voters. The nominations were hurriedly made without preliminary canvass. Had any voter been asked why he voted for this or that one he probably could not have given a very intelligent reply. What evidence had the voter that the ten men for whom he voted would make good examiners? In which subject or subjects was each competent to examine? What did this or that one know of physiology, anatomy, chemistry, materia medica, medicine, surgery or obstetrics? Was he competent in one or all of these subjects? If in one only, would he examine in that or in some other subject? The question is an important one, yet how lightly answered! Our membership from amongst whom we nominated ten veterinarians out of which number a board of five was to be selected is largely made up of veterinarians who have graduated from colleges requiring little or no education for entrance and some of them demanding attendance at but two sessions of six months each, and these must examine men who were required to possess two to four years of high school education for entrance and then to attend a veterinary college of three years of six to nine months each for graduation.

"Considering these conditions the society has been peculiarly fortunate in the selection of its nominees for these very important positions, highly capable and progressive men being generally selected, but the dangers to which we are subjected are too great to be ignored and should be lessened as promptly as

practicable. I believe the selections of examiners would be safer and better if, instead of appointing an entire new board every five years, one member was appointed annually, his duration of office to be five years, thus making the board continuous and calling upon the society for two nominees annually from which the educational department would select one. If, in addition to this, there were some plan for making advance nominations which voters might study, the selections might be made in a far more intelligent manner.

" If we would but use our opportunities we could have somewhat comprehensive knowledge of candidates for re-election, especially if a man has been on the board his list of questions in prior examinations might be secured and the voter might be able to reach some conclusion therefrom as to his fitness as an examiner. Anyone who has reviewed the questions presented at various examinations could not well avoid noting the inadequacy and impropriety of some of them and the value of others in testing a candidate's efficiency as a practitioner. Many questions asked are irrelevant, immaterial or simple catches which have no tendency to reveal the fitness of the candidate to practice, and an examiner who has once propounded such questions has demonstrated his unfitness for the position. There are, however, numerous difficulties in the way of the voter in studying the fitness of a candidate as examiner, one of the chief of which is the anomalous relation of the board and its members to the society and profession. The members of this society receive no report from the State Board of Veterinary Examiners, nor is any such report available. The education department prints a report of the examinations with the names and standing of the candidates, but this is virtually worthless so far as showing the methods and actions of the examining board. Each year the board is believed to hold a meeting behind closed doors, but what it does or how it does it is unrevealed to us.

" The relations between the examining board and the Department of Education seem equally vague. Neither appears to know what the other is doing. It has been said that the licenses to practice are signed in blank by the members of the board and that they have no means for knowing to whom such licenses are issued, whose names they bore or anything else definite concerning them. They apparently do not know who or by whose authority the names of the licensees are inserted in the licenses.

"It has also been claimed by members of the board that their question list, submitted prior to an examination, had been "edited" by some mysterious person. One examiner has personally complained to me that the examination paper as presented to the candidates was not recognizable to him as the same list which he had presented. Who "edits" these questions and by what authority?

"In our Class V of violators of the practice laws those graduates who have taken the examination of the state board and begin practice pending the result. we have regarded as being as truly violators of the law as any others. Perhaps we might say that they are among the worst type of violators. They presumably expect to conform to the law and, perhaps, believe or hope they have successfully passed; but the law is very clear and definite. Such practice is illegal. The board is partly responsible, however, for this violation. The number of candidates entering the examinations at any given date are not large enough to warrant any great delay in marking the papers and making a report. If one member of the board should be temporarily disabled the law does not dictate that he *must* mark any papers or that the marking of papers shall be at all delayed on that account. It is very evident that the examining board may delegate the marking of the papers on any subject or subjects to any member of the board or to competent persons outside the board so that the disability of one man need not delay the report. Yet it is the practice of the board to be dilatory to an apparently wholly unwarranted degree. Candidates have a right to know within a reasonable time whether they have passed or failed; but this right is ignored. Why such is the case is one of the undivulged secrets.

"Candidates trying the June examinations in 1906 received official notice of the result the last of August. Inquiries addressed to the Examinations Division of the State Department of Education regarding the results of the examinations in June, 1907, elicited the reply that the "official report" of the state board had not yet been filed and that, as soon as this was done, the desired information would be furnished me, and, since it has not yet come to hand, apparently the State Board of Veterinary Examiners has not yet completed its markings on papers filed in June last and no official reason for the delay is given. Why this delay? Can we expect obedience to our laws if the central body, about which our practice laws are grouped, is dilatory in its plain duty toward candidates for license?

" Naturally, the Examining Board must report, and be responsible to the Department of Education, but it seems to me that, having nominated these men for the office, this Society is entitled to, and should receive, a detailed report annually, which may be published and made available to its membership. Were such a report filed with this society it could be freely discussed and suggestions made which might be of value and such consideration would greatly enlighten our members and enable them to vote more intelligently when nominating examiners. Two years hence we need again nominate a new Board and it is to be earnestly hoped that the subject will in the meantime, be freely discussed.

" There is abundant room, apparently, for a better organization of the work of the Board. Teachers are barred from serving as members of it and thus a very competent class in the framing of questions is excluded, but the questions might be greatly improved in many cases if first submitted for review to the entire Board. Again the questions and markings would be better and more reliable if the person delegated for the work were chosen because of special fitness in that one subject; for Surgery, a competent surgeon; for Obstetrics, a country practitioner with extensive personal obstetric experience. Possibly some such thought is carried out. It is a notable fact, however, that the examinations in Obstetrics so far as can be discerned, have never been in the hands of an obstetrician, but always delegated to a city practitioner. The fault is not wholly with the Board as its membership is essentially confined to city practitioners and these are naturally not obstetricians.

" In these criticisms we are blaming neither the Board, the Education Department, nor any man or body of men; but merely pointing out defects which, we believe, need correction.

" We believe that the State Board of Veterinary Examiners should have increased powers and responsibillities, that the society should assume greater care and responsibility in nominating them and that the Board should become more highly organized for efficient work. In the matter of prosecution of illegal practitioners it should be the central advisory body and in general should constitute the representative of this society in the administration of the laws controlling veterinary practice.

" I would, therefore, lay before you the following recommendations:

"I. That the Prosecuting Committee of this society be discontinued.

"II. That the State Board of Veterinary Examiners, in conjunction with the president and secretary of this society, be instructed to ask the legislature to so amend the veterinary laws (*a*) that the duty of prosecuting offenders shall rest upon the district attorney of the county in which the offense is committed; (*b*) that all licensed practitioners shall annually register with the board to the end that a complete register of licensed veterinarians within the state may be maintained and published; (*c*) that the law be so modified that one member of the board shall be appointed annually, his term of office to continue for five years so that this society may nominate two candidates for the board each year instead of ten nominees at intervals of five years.

"III. That this society request of the board a detailed written annual report of its proceedings in suitable form for publication which shall include, among other things, the organization of the board, the subject or subjects assigned to each member for the license examinations, the lists of questions asked, the names of the candidates examined and their standing in each subject, the number of licenses issued and to whom granted.

"IV. That the board be urged by this society to enter into more direct and helpful relations with the Department of Education and that a better understanding be had relative to the 'editing' of question lists, the signing of blank licenses by members and any other questions which serve to confuse the relations of the veterinary profession with the Department of Education."

REPORTS OF COMMITTEES.

The Committee on the Revision of the By-laws reported through Chairman George H. Berns, who read the abstract prepared and submitted by mail to the members soon after the last meeting. There were many changes made, not only through the committee but by members from the floor, who had evidently given the various sections careful thought. As a finished instrument the new constitution and by-laws is a great improvement over its predecessor, and the Secretary was ordered to have a sufficient number printed and distributed among the members. It will also contain the names and addresses of all members at the close of the 1907 meeting.

The Legislative Committee, through Chairman Bell, reported verbally that no work had been done during the year; no bills

had been introduced at Albany inimical to the profession; that much legislation was needed but that the committee's instructions were so vague at the last session that it seemed to them more light and more energy were necessary to secure needed revision than they could bestow upon it.

The Prosecuting Committee reported that nothing had been attempted nor accomplished during the year beyond the writing of a few letters to offenders. The committee was of opinion that the law must be strengthened before successful prosecutions can be undertaken.

The Arrangements Committee reported through Member Bell that it believed adequate and ample facilities had been prepared for a successful meeting, both for the literary and clinical programs, and that the comfort and pleasure of members and visitors were provided for.

The Special Committee for the Advancement of the Army Bill reported through Chairman Morris that he had some correspondence with Washington authorities in behalf of the bill but that nothing could be done for it at the last session of Congress.

NEW MEMBERS ELECTED.

The following list of applications was examined by the Board of Censors and favorably recommended for election to membership:

D. C. Huxtable, Middletown.
Ben Howes, Corning.
M. Hamilton, Delhi.
Cassius Way, Brooklyn.
A. A. Brahett, Little Falls.
Henry Cady, Gloversville.
C. H. Taylor, Niagara Falls.
R. N. G. Darby, Fort Plain.
W. Reid Blair, New York City.
Frank Wright, Brooklyn.

RESIGNATIONS.

W. B. Mack (removed to Nevada).
Joseph H. Sutterby, Rochester.

The names of ten members were dropped from the roll for non-payment of dues.

THE ATTENDANCE.

The following list does not represent the entire attendance but is a register of those who sat down to luncheon in the Boat House Restaurant in the Zoological Park as well as a few observed at the clinic and at the Academy of Medicine: Garry T. Stone, Middletown; Wm. Henry Kelly, Albany; Wilson Huff, Rome; A. H. Ide, Lowville; E. F. Bitting, Chittening; L. G. Moore, Trenton; D. D. LeFevre, Newark; B. G. Pierce, Springfield, Mass.; George H. Berns, Brooklyn; Wm. F. Kirchner, New York City; Charles Schroeder, Brooklyn; J. G. Hill, Atlanta, Ga.; L. R. Weber, Rochester; H. R. Collins, N. Y. City; Robert W. Ellis, N. Y. City; Alphonse Dodin, N. Y. City; John G. Dolan, N. Y. City; John J. O'Connell, N. Y. City; W. Reid Blair, N. Y. City; D. J. Mangan, N. Y. City; C. E. Shaw, Brooklyn; P. A. Fish, Ithaca; C. D. Morris, Binghamton; W. L. Baker, Buffalo; W. G. Hollingworth, Utica; Roscoe R. Bell, Brooklyn; E. B. Ackerman, Brooklyn; H. D. Hanson, N. Y. City; Alexander Findlay, Harry D. Gill, N. Y. City; F. C. Grenside, N. Y. City; George H. Yates, N. Y. City; T. F. Krey, N. Y. City; J. A. Hühne, Kingston; T. F. O'Dea, Saugerties; Otto Faust, Poughkeepsie; H. Koch, Brooklyn; Geo. W. Meyer, N. Y. City; T. J. Herr, N. Y. City; W. J. Wadsworth, Cobleskill; Henry Cady, Gloversville; E. L. Loblein, New Brunswick, N. J.; Edward J. Nesbitt, Poughkeepsie; L. H. Howard, Boston, Mass.; F. J. Baker, Gouverneur; A. A. Brockett, Little Falls; G. F. Harker, Trenton, N. J.; S. H. Burnett, Ithaca; C. H. Case, Akron, O.; C. H. Fredericks, Canton, O.; E. F. Vorhes, Owego; M. C. Thompson, Sharon, Conn.; F. W. Andrews, Mt. Kisco; Geo. A. Knapp, Millbrook; M. E. Dusinbery, Syracuse; R. W. Gannett, Brooklyn; Cassius Way, Brooklyn; V. A. Moore, Ithaca; P. J. Axtelle, Binghamton; R. N. Gordon Darby, Fort Plain; Joseph V. Prucha, Matteawan; Walter G. Morehouse, Asbury Park, N. J.; M. Hamilton, Delhi; C. H. Taylor, Niagara Falls; Samuel Atchison, Brooklyn; A. George Tegg, Rochester; Frank J. Loomis, Watertown; G. S. Hopkins, Ithaca; J. H. Taylor, Henrietta; Charles H. Perry, Worcester, Mass.; L. A. Paquin, Webster, Mass.; Charles Winslow, Rockland, Mass.; W. M. Simpson, Malden, Mass.; W. L. Williams, Ithaca; H. S. Beebe, Albion; W. E. Stocking, Medina; J. D. Lott, Medina; H. K. Miller, N. Y. City; A. T. Grover, N. Y. City; D. B. Rogers, London, Eng.; B. R. Wilbur, Newark, N. J.; J. G. Hill, Jacksonville, Fla.; Thomas E. Smith, Jersey City, N. J.; J. L. Wilder,

Brooklyn; J. Elener Ryder, N. Y. City; Charles S. Atchison, Brooklyn; L. McLean, Brooklyn.

The following ladies and children were noted among those in attendance: Mrs. Wm. Henry Kelly and Wm. Henry Kelly, Jr., Albany; Mrs. A. Dexter, N. Y. City; Mrs. Wilson Huff, Rome; Mrs. A. H. Ide, Lowville; Mrs. L. G. Moore, Trenton; Mrs. Benj. D. Pierce, Springfield, Mass.; Miss N. C. Berns, Brooklyn; Mrs. L. P. Webber, Rochester; Mrs. J. G. Hill, Atlanta, Ga.; Mrs. C. R. Webber, Rochester; Mrs. Robert W. Ellis, N. Y. City; Mrs. W. G. Hollingworth, Utica; Mrs. Roscoe R. Bell, Miss Virginia Bell, Master Bellmont Bell, Master Hollingsworth Bell, Master Jesse Rogers, Brooklyn; Mrs. E. B. Ackerman, Brooklyn; Mrs. H. D. Hanson, N. Y. City; Mrs. G. F. Harker, Newton, N. J.; Mrs. Charles H. Perry and Master Roger Newton Perry, Worcester, Mass.; Mrs. J. L. Wilder, Brooklyn; Mrs. H. S. Beebe, Albion; Mrs. W. E. Stocking, Medina; Mrs. J. D. Lott, Medina.

PAPERS AND DISCUSSIONS.

The business of the society was well in hand about the middle of the afternoon of the first day and the President announced that one or two papers could be disposed of before adjournment.

An illustrated paper by Prof. Veranus A. Moore, entitled "Toxic and Bacterial Immunity," was then taken up, and, although an extremely difficult subject to make plain to an audience, composed largely of practitioners, the author succeeded in giving a very clear impression to all who heard him.

Then Dr. S. H. Burnett brought forth an account of "The Control of an Outbreak of Anthrax," giving minute details of his investigations and the methods adopted for its control.

When the subject of the election of officers (who are to serve only one year instead of two, under the revised by-laws) was brought up Dr. Morris moved that a nominating committee be appointed instead of naming them from the floor, as heretofore. The motion being carried the president appointed Dr. Morris chairman and Drs. Webber and Bell. The latter two not being able to remain for an evening session, the President substituted two other names, and the matter was postponed until the following day.

SECOND DAY, AT THE ZOOLOGICAL PARK.

While a bright, invigorating day, the weather was entirely too cold for an outdoor meeting, as had been contemplated, and Dr. Blair, who had charge of the park arrangements, provided a well-adapted building in which to hold the meeting.

Dr. W. G. Hollingworth, of Utica, started the program by reading his paper on "Dairy Inspection," and he covered the subject from both a practical and scientific aspect. It caused considerable discussion, among those taking part being Drs. Kelly, Moore, Nesbitt, Baker, Webber and Morris.

Dr. H. D. Gill's paper on "Notes on the Tuberculin Test" was full of practical suggestions and conclusions drawn from extensive experience, and it was discussed by Drs. McLean, Hollingworth, Way and Moore.

"Mallein versus the Agglutination Test for the Diagnosis of Glanders," was the red flag which Dr. H. D. Gill held before the eyes of the veterinarians. He came prepared with large and comprehensive record tables of certain cases which seemed to show both tests not altogether reliable but each constituting a great advance in arriving at a diagnosis in occult cases. He was backed up by autopsies by Dr. Blair and some important data and conclusions by Dr. Collins (a female physician) of the New York Board of Health. Dr. Gill believed there should be a standardization of agglutinating equivalents, for, as each laboratory has a different ratio, it is difficult for those not laboratory experts to understand the significance of the various ratings. Gill was full of fight for his contentions and it is probable that the discussion would have been continued indefinitely if the President had not shown that it must be concluded to permit of the transaction of some other important business.

Dr. George H. Berns, in connection with this subject, gave a talk on "Practical Application of the Agglutination Test in a Large Outbreak of Glanders," and he showed his unbounded faith in the method, though not by any means condemning or underestimating mallein.

At the conclusion of Dr. Berns' talk the general discussion of the subject began and was opened by Dr. Ackerman, followed by Drs. Gill, Berns, Moore, Kelly, Mangan, Pierce and others, many taking the floor again and again.

Several other papers were upon the published program, as well as three or four volunteer ones which had been tendered

after the issuance of the regular program, but it was clear that no more could be reached. Therefore the reading and discussion of papers was terminated and the society proceeded to the

ELECTION OF OFFICERS,

which resulted as follows:

President—W. L. Baker, Buffalo.
Vice-president—Clarence E. Shaw, Brooklyn.
Secretary-treasurer—M. Hamilton, Delhi.
Board of Censors—J. W. Corrigan, Wilson Huff, Holford, Otto Faust and W. H. Pfyfe.

RESOLUTIONS ADOPTED.

The Committee on Resolutions then presented the following, which were adopted:

To Censor Veterinary Departments in the Agricultural Press.

Resolved, That a committee of three be appointed to investigate and report at the next meeting of the society on the question of criminal jurisprudence.

Committee was appointed: Drs. C. D. Morris (chairman), V. A. Moore, W. L. Baker.

On the Death of Dr. Arthur O'Shea.

Resolved, That in the death of our fellow-member, Dr. Arthur O'Shea, the veterinary profession as a whole and our State society in particular, has lost a conscientious worker, and be it

Resolved, That at this time we offer this expression of our sorrow and the same be spread upon the minutes of this society.

Recommendations of the President.

(1) That the prosecuting committee of this society be discontinued.

(2) That the State Board of Veterinary Examiners, in conjunction with the President and Secretary of this society, be instructed to ask the legislature to so amend the veterinary laws, (*a*) that the duty of prosecuting offenders shall rest upon the district attorney of the county in which the offence is committed; (*b*) that all licensed practitioners shall annually register with the board to the end that a complete register of licensed veterinarians within the state may be maintained and published; (*c*) that the law be so modified that one member of the board shall be appointed annually, his term of office to continue for five years, so

that this society may nominate two candidates for the board each year instead of ten nominees at intervals of five years.

(3) That this society request of the board a detailed written annual report of its proceedings, in suitable form for publication, which shall include, among other things, the organization of the board, the subject or subjects assigned to each member for the license examinations; the lists of questions asked; the names of the candidates examined and their standing in each subject; the number of licenses issued and to whom granted.

(4) That the board be urged by this society to enter into more direct and helpful relations with the Department of Education and that a better understanding be had relative to the "editing" of question lists, the signing of blank licenses by members and any other questions which serve to confuse the relations of the veterinary profession with the Department of Education.

It was shown that in some of the farmer papers having a department devoted to the answering of questions upon veterinary subjects that at least one of such departments is edited by a man who spreads before the readers of the paper erroneous and mischievous "information," and it was suggested that a committee be appointed to wait upon the publishers of such papers and show them the great injustice being done, not only to the veterinary profession but to their readers, and to endeavor to have such false scientists removed from their posts. The President appointed a committee of three.

The newly-elected President was then inducted into office and made some appropriate remarks, after which a vote of thanks was tendered to the retiring officers.

The place for holding the next meeting was then taken up and two candidates were placed in nomination—Utica and Ithaca, the former winning handily.

The meeting then adjourned to meet at the Surgical Clinic the next morning at 10 o'clock.

THE SURGICAL CLINIC

was held in the large veterinary hospital of the Fiss, Doerr & Carroll Horse Co., in Twenty-fourth street, and, although there was not that variety of interesting cases that have characterized the clinics of this society for the past few years, it was, on the whole, a very good one. The following operations were performed:

I. Amputation of penis under cocaine anæsthesia, operating table. Surgeon, Dr. W. L. Williams.

II. Cunean tenotomy, standing, under cocaine anæsthesia. Surgeon, Dr. J. E. Ryder.

III. Median neurectomy, on operating table; general anæsthesia. Surgeon, Dr. E. B. Ackerman.

IV. Roaring operation, horse cast on bed of straw on the roof garden; general anæsthesia administered through trachea tube. Surgeon, Dr. W. L. Williams.

V. Cartilaginous quittor, Bayer method; operating table; local anæsthesia. Surgeon, Dr. Charles S. Atchison.

VI. Cartilaginous quittor, hind foot; Bayer method; table; local anæsthesia. Surgeon, Dr. Charles S. Atchison.

* * *

NOTES OF THE NEW YORK STATE MEETING.

No better nor more instructive entertainment was ever provided for a meeting of a veterinary association than that at the Zoological Park. The only drawback to its perfect success was the lack of time to see one-half of the interesting exhibits. For this grand treat the members and visitors must ever be grateful to Dr. W. Reid Blair, member of the state society and pathologist of the park.

An illustrated account of the clinic was given in the *Herald* of the following Sunday. It not only showed the society in an enviable light but served as an excellent advertisement for the Fiss, Doerr & Carroll Horse Co. and the operating table of the Bradwood Manufacturing Co.

Theatre parties were the order of the evening. While many visitors, their wives and friends, attended various places of amusement on the first two evenings, the city association tendered the ladies a matinee performance at the Hippodrome on Thursday afternoon.

The election of officers was somewhat of a surprise as nearly every gentleman elected was from "up the state," the only exception being Vice-president Shaw, of Brooklyn.

Utica was selected for the meeting place of 1908, and it is safe to predict that the energy and wholeheartedness of Dr. Hollingworth will make the occasion entirely worthy of that event.

Dr. M. Hamilton, of Delhi, probably holds the record for advancement in the society. Joining the organization at this meeting, he was within a few hours made its Secretary.

A new record was established at this meeting in that Dr. W. L. Baker, of Buffalo, was chosen President for the second time within a few years. Some important legislation is to be undertaken this winter, and Baker is a worker at Albany and will probably accomplish more than most men could.

A good beginning was made toward squelching the miserable and mischievous influence of a certain man who edits the veterinary query department of one of the influential farmer journals. A committee was appointed to wait upon the publishers and endeavor to show them that unreliable and misleading information was being disseminated to its readers, thus doing a serious injustice to both the agriculturist and the veterinary profession.

What has become of the County Secretaries? While they never took a whole-hearted interest in their duties, we can recall a few instances where some valuable material was obtained through that source. Of recent years no appointments have been made, and, of course, no reports were received. If each County Secretary were to exert himself the majority of the qualified men of his district could be brought within the membership and co-operation of the State Society. R. R. B.

CALIFORNIA STATE VETERINARY MEDICAL ASSOCIATION.

The meeting was called to order by President Browning in Odd Fellows Hall, Sacramento, September 4. Dr. Ward was asked to assume the duties of Secretary *pro tem.* Minutes of the meeting of the Association, held at Fresno, March 7, 1907, were read and approved. Minutes of the meeting of the Association, held at Key Route Inn, Oakland, June 12, were read.

Dr. Morrison asked for an explanation of the wording of the resolution referring to the collection of funds from practitioners north of the Tehachapi to be used in the prosecution of illegal practitioners.

Dr. Longley explained that the Southern men collected their own funds for prosecutions in the South and it did not seem fair to include them in the resolution. Dr. Archibald also spoke in the same vein. Dr. Morrison expressed satisfaction at the explanation and assured the meeting of the willingness for the men in the South to collect funds for themselves. Dr. Creeley expressed a belief that it would be unfair to receive money from the South without prosecutions being made there.

The minutes were approved.

Dr. Spencer moved that this organization ask the consent of the Southern Auxiliary in stamping out quackery and that the Southern Auxiliary make such disposition of funds as it deems best. Seconded and carried.

President Browning suggested the reading of resolutions from the Southern Auxiliary commending the action of the old Board, but Dr. Morrison asked leave to occupy the floor first. Dr. Morrison made a defense of the motives and actions of the late Board of Veterinary Medical Examiners. Dr. Tyler, Vice-President of the Southern Auxiliary, expressed a belief that the members of the Board were not guilty of unprofessional conduct. Drs. Keane and Creely spoke on the subject. Dr. Archibald also spoke on the subject. Dr. H. Spencer seconded the motion that action be held in abeyance until the courts decide. (This is the way that the notes of the meeting appear, as made by Dr. Megowen during the absence of Ward). Dr. Norton also spoke on the subject. Dr. Longley moved that a committee be appointed by the chair, to draw up resolutions exonerating the old Board. Seconded and passed. Appointed: Drs. Spencer and Longley.

Dr. Morrison, in behalf of the old Board, thanked the members for their consideration.

Dr. Longley reported progress of the Prosecution Committee.

No applications for membership.

PAPERS AND DISCUSSIONS.

Dr. Tyler spoke on glanders. A lengthy discussion was participated in by Drs. Morrison, Fox, Carroll, Norton, Keane and Spencer.

Dr. Morrison moved that it be the sense of this Association that, in future, veterinarians report the existence of glanders to county, municipal and state authorities.

Dr. Keane suggested an amendment that the report be made only when animals are not destroyed, or when owners refuse to notify.

After some discussion, Dr. Keane withdrew his amendment and the original motion was seconded and passed.

Dr. Archibald gave a paper on "Opsonic Therapy," and pointed out the possible application of opsonic work to certain classes of animal diseases.

Dr. Segworth gave a paper on the "Impaction of the Colon."

RESOLUTIONS ON THE OLD BOARD OF EXAMINERS.

The committee on the resolutions concerning the old Board presented the following resolutions:

"WHEREAS, At the last quarterly meeting of this Association it was resolved that the members of the late State Veterinary Board of Examiners be and are hereby cited to appear before this Association and show cause why they should not be dropped from membership of said Association for alleged irregularity in the matter of the issuance of State Licenses, and said gentlemen having responded to said citation, be it

"*Resolved,* That it is the sense of this meeting, duly assembled, that the explanation of the matter is entirely satisfactory, and clears an atmosphere that promised much harm to the profession of this state; and be it further

"*Resolved,* That we are convinced that the gentlemen composing the late Board of Veterinary Examiners, in the issuance of said licenses, believed they were entirely within their rights, and the legality of their actions can only be determined by the courts."

Dr. Morrison asked that a copy be sent to the AMERICAN VETERINARY REVIEW. President Browning assented to the same.

Dr. Fox asked about the status of Dr. Neilsen, whose license from the old Board was dated about March 12, and before that Board was legislated out of existence. Dr. Fox called attention to the fact that, inasmuch as Dr. Neilsen's diploma had been passed around from one member of the Board to another, before the new legislation, that it was just as good as that of any other member of the Association. He called attention to the fact that Dr. Neilsen had been passed upon by a Board of Examiners of the Association, but that Dr. Neilsen's name was among the thirty-two refused admission to the Association by the resolution of the Oakland meeting.

Dr. Morrison took the floor and expressed a feeling that Dr. Neilsen was in no different position from that of any other practicing veterinarian in the State whose diploma had been passed around from one member of the Board to another.

The members of the Examining Board of the Association expressing their approval of Dr. Neilsen's credentials, Dr. Neilsen was elected to membership of the Association.

ELECTION OF OFFICERS.

A short recess was declared for the nomination of officers.

The following were nominated:

President—Dr. D. F. Fox.

Vice-President—Dr. Longley.

Secretary—Dr. Haring.

Treasurer—Dr. Fisher.

It was moved and seconded that the nominations for these four offices be closed. Passed.

The following were nominated for membership on the Examining Board: Drs. Creely, Spencer and Word. Seconded and carried.

The following were appointed as essayists for the next meeting: Drs. Neilsen and Hill.

Dr. Tyler invited the members to attend the meeting of the Southern Auxiliary.

A vote of thanks was tendered to the essayists of the meeting.

Dr. Charles Eastman's bill of $13.50 was ordered, by resolution, to be paid.

Meeting adjourned.

A. R. WARD, *Secretary pro tem.*

MONTANA VETERINARY MEDICAL ASSOCIATION.

The members of this Association assembled at the office of Dr. M. E. Knowles, in the Capitol building, held in Montana, October 2d, and were called to order by President Knowles at 10.30 A. M.

The first order of business, consisting of roll-call, was then taken up. Owing to the lateness of the trains only the Helena members—Drs. M. E. Knowles, E. D. Nash and E. T. Davison—responded. In order that there might be sufficient members present to transact the routine business of the Association, it was voted, on the motion of Dr. Nash and second by Dr. Davison, that the Secretary be instructed to cast the vote of the Association for such of the members-elect as were present. In accordance with instructions, the Secretary cast the vote of the Association for Drs. W. C. Orre, of Dillon; C. F. Leslie, of Kalispel, and F. C. Eells, of Missoula, and they were declared duly elected.

We were favored with the following address by President M. E. Knowles.

"*Gentlemen:*

"I feel profoundly grateful for the compliment you have conferred in making me the first president of the first, and I trust the only Montana Veterinary Medical Association that will be perpetuated by you and your successors for all time.

"Prior to 1901 there was in Montana only three or four veterinarians, graduates of reputable veterinary colleges; but during the past six years unusual conditions of prosperity, a rapidly increasing population, a progressive tendency of our agricultural and urban population to maintain and perpetuate a superior class of domestic animals, together with a growing appreciation of the educated veterinarian, has induced more than twenty most creditable representatives of our profession to adopt Montana as a future home. I am assured that all of these new acquisitions to Montana's veterinary profession are prosperous, contented and proud of having selected Montana as a place of permanent residence.

"The suggestion by Dr. Nash that there be an organization of this association was most opportune and a happy one. Our first meeting (at which organization was accomplished) had proportionately a larger attendance than usually obtains under similar conditions in more populous states, and the papers presented at this meeting were of superior excellence.

"You have launched an organization under the most auspicious circumstances, with a *personnel* of which you may well be proud. Let us make our ideals high and determine not to fall short of attaining a position second to none of the associations of our many states.

"Let each individual strive to make his influence for the betterment of mankind be felt and appreciated in his particular community and the state at large.

"I must again repeat that the really great sphere of usefulness for the veterinarian is in preventive medicine. The alleviation of animal disease is a consummation worthy of your effort, but the prevention of disease, particularly those communicable to mankind, is an exalted attainment.

"It is with profound sorrow that I must recite the death of our brother, Dr. J. A. Madden, who passed away at his home in Bozeman, September 19. The passing of Dr. Madden has removed from our association a well-loved and valued member

who, as you all know, was most active in our organization. From Gallatin County, to a man, every citizen of which who knew him, speak in exalted terms and with sorrowed voice refer to his untimely end.

"The life of Dr. Madden is worthy of emulation; let us all strive to

"So live, that when thy summons comes to join
"The innumerable caravan which moves
"To that mysterious realm where each shall take
"His chamber in the silent halls of death,
"Thou go not, like the quarry-slave at night,
"Scourged to his dungeon; but, sustained and soothed
"By an unfaltering trust, approach thy grave
"Like one who wraps the drapery of his couch
"About him, and lies down to pleasant dreams."

The applications for membership in the Association were next considered. On the motion of Dr. Orr, and seconded by Dr. Eells, it was voted that the Secretary be instructed to cast the vote of the Association for Dr. H. C. Gardiner and Dr. W. J. Hartman, of Bozeman, and Dr. W. J. Butler, of Glendive. In accordance with instructions the Secretary cast the vote of the Association for the above-mentioned candidates and they were declared duly elected.

Then followed the reading of the Secretary-Treasurer's financial report, which showed that the finances of the Association were in a healthy condition, that we were a solvent organization and had a balance in the treasury of $54.70 and no debts. Report referred to Financial Committee, consisting of Dr. E. D. Nash and Dr. C. F. Leslie, for examination and verification.

An adjournment was then taken until 8 P. M.

Meeting called to order at 8.20 P. M., President M. E. Knowles in the chair.

The first matter considered was the report of the Finance Committee on their examination of the Secretary-Treasurer's accounts, which they reported to be correct and as represented.

The Committee on Necrology then presented resolutions on the death of Dr. J. A. Madden. This committee, by the consent of President Knowles, incorporated in their resolutions that portion of the President's address having reference to Dr. Madden, in addition to which the committee added the following resolutions:

"WHEREAS, We feel that through his death the veterinary profession has suffered an irreparable loss, and

"WHEREAS, We not only deplore his death as a member of our profession, but as a friend whom to know was to honor for his sterling traits of character;

"*Resolved,* That the Association extend his bereaved family in their affliction the sincere sympathy of its members; and be it further

"*Resolved,* That these resolutions be entered in the records of the Association and a copy sent to his family.

"(Signed) E. T. DAVISON,
"E. D. NASH,
"W. C. ORR,
Committee."

At this meeting we were fortunate in having with us Prof. Emil Starz, the eminent chemist and true friend of the veterinary profession.

On the motion of Dr. Davison, and second by Dr. Nash, it was unanimously voted that Prof. Starz be elected an honorary member of the association.

It was also unanimously voted that all who joined the association on or prior to October 2, 1907, be allowed to come in as charter members.

Nomination and election of officers was then taken up and the following were elected for the ensuing year:

President—E. T. Davison, Helena.

Vice-President—E. D. Nash, Helena.

Secretary-Treasurer—H. C. Gardiner, Bozeman.

The matter of selecting the place for the next annual meeting was then discussed at length. Drs. Gardiner and Hartman were very active in championing the merits of Bozeman and extended a cordial invitation to the association to hold its next meeting at that place. While the enterprise of Drs. Gardiner and Hartman was fully appreciated, it was deemed expedient, for a time at least, to hold the annual meeting at Helena.

We were then favored with an excellent paper on "Ptomaines and Ptomaine Poisoning" by Prof. Emil Starz. The reading of this paper was followed by a spirited discussion in which the unsupervised butcher and milkman with their preservatives and embalming fluids came in for a goodly share.

On the motion of Dr. M. E. Knowles, and second by Dr. Orr, it was voted that a committee be appointed to furnish a pathological exhibit for the next state fair and also to act as a publicity committee.

The next on the program was a discussion on "Quacks and Quackery" by Dr. F. C. Eells, of Missoula. The matter was ably handled and as a remedy for prevailing conditions it was suggested that each and every member constitute himself a committee of one and endeavor to interest his representative in the cause of effective veterinary legislation, with the object in view of securing something effective in that line at the next session.

Dr. H. C. Gardiner, of Bozeman, delivered an address covering extensive research work along the line of "Experimental Arsenical Poisoning." The excessive amount of arsenic, in solution and in the powdered form, ingested with apparent impunity by the various control animals, was a revelation to most of the members present.

There being nothing further to engage the attention of the Association, meeting was adjourned, peace and good will prevailing.

E. T. DAVISON, *Ex-Secretary-Treasurer.*

MISSOURI VALLEY VETERINARY ASSOCIATION.

The adjourned meeting was called to order at the New Casino, 1023 Broadway, Kansas City, Mo., at 10 A. M., Monday, September 9, 1907, by Dr. S. Stewart, President.

The following members and visiting veterinarians were present: *Missouri*—Drs. H. Bradley, Windsor; S. Smith, Columbia; F. F. Brown, Kansas City; A. T. Kinsley, Kansas City; E. A. VanAntwerp, Brookfield; A. W. James, Cameron; C. E. Steel, St. Joseph; E. J. Netherton, St. Joseph; D. F. Luckey, Columbia; S. Stewart, Kansas City; L D. Brown, Hamilton; B. F. Kaupp, Kansas City; W. Warren, Sedalia. *Nebraska*—G. J. Collins, West Point; E. F. Stewart, Beatrice; J. A. Berg, Pender; A. T. Peters, Lincoln; V. Schaefer, Tekamah; W. R. O'Neal, Wayne; Peter Simonson, Freemont. *Iowa*—S. H. Bauman, Birmingham; A. C. Woods, Council Bluffs; D. H. Miller, Des Moines. *Kansas*—Drs. W. L. Elliott, Paola; C. B. McClelland, Lawrence; T. C. McCasey, Concordia; Chas. Saunders, El Dorado. *New Jersey*—Dr. Wm. Herbert Lowe, and others.

The following names duly vouched for and favorably passed upon by the Board of Censors were elected to membership: *Kansas*—Drs. Geo. A. Hanvey, Jr., Ft. Riley; Geo. Morris, White City; B. W. Conrad, Sabetha; J. F. Hemphill, Clay Center; C. C. Walch, Burden; W. O. Rozell, Ottawa; C. W. Dunn, Paola.

Missouri—Drs. W. B. Welch, Marshall; H. C. Eliot, Nevada; G. H. Tangeman, Cowgill; B. F. Gooch, Browning; Geo. E. Butin, Kansas City; B. C. Davis, Carrollton. *Nebraska*—Drs. J. C. Bowman, Tecumseh; W. T. Pritchard, Wisner; R. E. Noyes, Hartington; C. L. Norris, North Bend. *Colorado*—Drs. C. L. Stults, Boulder; H. E. Kingman, Boulder.

A resolution was introduced to raise the dues from $1 per year to $2 per year, the extra dollar to go to the Publication Committee, and that each member be required to pay his dues in advance, thereby becoming a subscriber to the *Bulletin*. Any one not a member can become a subscriber to the *Bulletin* by paying $1 per year.

The following officers were elected for the following year:

President—Dr. H. Jensen, Weeping Water, Neb.

First Vice-President—Dr. E. F. Stewart, Beatrice, Neb.

Second Vice-President—Dr. W. B. Welch, Marshall, Mo.

Secretary-Treasurer—Dr. B. F. Kaupp, Kansas City.

Censors—Nebraska, Dr. W. R. O'Neil; Missouri, Dr. W. Warren; Kansas, Dr. C. B. McClelland; Iowa, Dr. D. H. Miller, Oklahoma, Dr. W. B. McAlester.

The Censors audited the books of the Treasurer and reported same correct. The report was accepted.

Moved by Dr. H. Jensen, seconded by Dr. F. M. Starr, that the Association make good the deficit incurred in the publication of the *Missouri Valley Veterinary Bulletin*. Carried.

Dr. A. T. Peters was re-elected editor-in-chief of the *Bulletin* for the ensuing year, and the President empowered to appoint an associate editor from each State represented in the Association.

The news of the death of Dr. H. L. Ramacciotti, Omaha, Neb., was received during the meeting of the American Veterinary Medical Association and the members of the Valley Association present authorized the expenditure of $10 for a suitable floral decoration. Dr. G. R. Young, of Omaha, was appointed to deliver same and extend the sympathies of the Association to the bereaved family.

Adjourned to meet in Kansas City, in February, the exact date to be fixed by the officers of the Association.

B. F. KAUPP, *Secretary*.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

The regular meeting was held in Donaldson's Hall, Broad and Filbert streets, on Tuesday, October 8, 1907.

Dr. B. M. Underhill, the President, occupying the chair, and the following members responded to roll-call: Drs. Hoskins, Lintz, James A. McAnulty, C. J. Marshall, Leonard Pearson, W. L. Rhoads, John Reichel, B. M. Underhill, J. W. Vansant, G. W. Hartman, D. B. Fitzpatrick, A. F. Schriber, H. B. Cox and H. G. Black. Visitors, Dr. Noack, of Reading, Pa.; T. S. Carlisle, A. J. McCloskey, H. C. Campbell, E. S. Dubler, J. J. Zilligan, W. J. Lentz, Henry Marshall, H. M. Baker, Chas. C. Schloemer, J. P. Bushong, Amos M. Anderson, Dr. Laurence (late of the 5th Cavalry, P. I.) and many students from the veterinary school of the U. of P.

Dr. Stephen Lockett was regularly elected to membership.

Dr. Leonard Pearson then spoke upon the disease, " Epizoötic Lymphangitis," which had appeared recently in Western Pennsylvania. How the animals became infected is not known, and Dr. Pearson, as state veterinarian, is taking every precaution to prevent its spreading.

Dr. John Reichel described the organism which produces the disease; it is in the form of the yeast fungi—the *Saccharomyces farciminosus.* He also explained the mode of culture and of isolating the organism.

It is strongly probable that at the next meeting of the Pennsylvania State Veterinary Association Dr. Pearson will exhibit a case of epizoötic lymphangitis.

This being the annual meeting at which the election of officers takes place, Dr. Pearson moved that the Secretary be instructed to cast the ballot for all the presiding officers. Seconded and carried.

Dr. Hoskins spoke of the excellent chances for the meeting of the A. V. M. A. meeting in 1908 to come to Philadelphia, and he made a motion, which was promptly carried, that a committee be appointed to persuade the Executive Committee of the A. V. M. A. that Philadelphia is the place for next year's meeting.

Dr. C. J. Marshall spoke of the success of the Work Horse Parade Association, having 650 entries and over 1,000 horses.

Dr. Pearson suggested that the Keystone Veterinary Medical Association offer a prize for each class of the city department horses, and upon a motion by Dr. Rhoads a committee was appointed to select suitable cups as prizes.

This was an excellent meeting, the room being too small to entertain so many, and we hope that each meeting in the future will be as well attended.

A. W. ORMISTON, D. V. S., *Secretary.*

AMERICAN VETERINARY MEDICAL ASSOCIATION.

President Dalrymple has announced the appointment of Committees and Resident Secretaries as follows:

COMMITTEES FOR 1907-8.

Executive—W. Herbert Lowe, Chairman; M. H. Reynolds, Joseph Hughes, W. Horace Hoskins, J. G. Rutherford, E. B Ackerman.

Publication—C. J. Marshall, Chairman; E. M. Ranck, T. E. Smith, Tait Butler, R. P. Lyman.

Finance—Thomas Bland, Chairman; C. D. McGilvray, Chas. A. McKim.

Diseases—V. A. Moore, Chairman; C. H. Higgins, H. J. Milks, J. R. Mohler, O. E. Dyson.

Intelligence and Education—Leonard Pearson, Chairman; D. Arthur Hughes, J. H. McNeil, M. Francis, S. Brenton.

Association of Faculties—G. W. Dunphy, Chairman; G. H. Berns, E. H. Shepard.

Legislation—J. P. Turner, Chairman; T. E. Budd, A. S. Cooley, C. E. Cotton, C. G. Lamb.

Necrology—A. H. Baker, Chairman; William Dougherty, Thomas Thacker, C. C. Lyford, J. F. Winchester.

Resolutions—Sesco Stewart, Chairman; A. T. Peters, E. L. Quitman, J. L. Robertson, M. E. Knowles.

RESIDENT SECRETARIES.

Alabama—Ward Giltner, Auburn.
Arizona—J. C. Norton, Phoenix.
Arkansas—R. R. Dinwiddie, Fayetteville.
California—P. H. Browning, San Jose.
Colorado—Mark White, Denver.
Connecticut—G. W. Loveland, Torrington.
Delaware—H. P. Eves, Wilmington.
District of Columbia—B. T. Woodward, Washington.
Florida—J. G. Hill, Jacksonville.
Georgia—W. A. Scott, Columbus.
Hawaii—W. T. Monsarrat, Honolulu.
Idaho—C. R. Behler, Nampa.

Illinois—L. A. Merillat, Chicago.
Indiana—J. W. Klotz, Noblesville.
Iowa—G. A. Johnson, Sioux City.
Kansas—C. H. Jewell, Fort Riley.
Kentucky—D. A. Piatt, Lexington.
Louisiana—M. M. White, Shreveport.
Maine—A. Joly, Waterville.
Maryland—F. H. Mackie, Baltimore.
Massachusetts—B. D. Pierce, Springfield.
Michigan—J. Black, Richmond.
Minnesota—G. E. Leech, Winona.
Mississippi—J. C. Robert, Agricultural College.
Missouri—J. M. Phillips, St. Louis.
Montana—A. D. Knowles, Livingston.
Nebraska—H. Jensen, Weeping Water.
Nevada—J. O. Jacobs, Reno.
New Hampshire—L. Pope, Jr., Portsmouth.
New Jersey—J. P. Lowe, Passaic.
New Mexico—F. L. Schneider, Albuquerque.
New York—W. H. Kelly, Albany.
North Carolina—A. Fisher, Charlotte.
North Dakota—L. Van Es, Agricultural College.
Ohio—J. V. Newton, Toledo.
Oklahoma—J. G. Steele, Oklahoma City.
Oregon—J. M. Creamer, Portland.
Pennsylvania—S. H. Gilliland, Marietta.
Philippine Islands—G. E. Nesom, Manila.
Porto Rico—T. A. Allen, San Juan.
Rhode Island—K. G. Cherrington, Providence.
South Carolina—L. Friedheim, Rock Hill.
Tennessee—M. Jacob, Knoxville.
Texas—J. W. Parker, San Antonio.
Utah—N. G. Spaulding, Provo.
Vermont—Robert Weir, Rutland.
Virginia—J. Spencer, Blacksburg.
Washington—S. B. Nelson, Pullman.
West Virginia—L. N. Reefer, Wheeling.
Wisconsin—W. H. Perrigo, Milwaukee.
Wyoming—A. W. Whitehouse, Laramie.

Canada.

Alberta—J. C. Hargrave, Medicine Hat.
British Columbia—S. F. Tolmie, Victoria.

Manitoba—F. Torrance, Winnipeg.
New Brunswick—D. McCuaig, Moncton.
North-West Territory—J. F. Burnett, Macleod.
Nova Scotia—W. H. Pethick, Antigonish.
Ontario—J. H. Tennent, London.
Quebec—A. A. Etienne, Montreal.

Cuba.

Cuba—N. S. Mayo, Santiago de las Vegas.

South America.

Argentine Republic—Pedro L. del Carril, Buenos Ayres.
Uruguay—D. E. Salmon, Montevideo.

Australia.

South Australia—J. Desmond, Adelaide.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK CITY.

The October meeting was held in the lecture-room of the New York American Veterinary College on the 2d. Owing to the indisposition of President Bell the vice-president, Dr. Chas. E. Clayton, presided.

After the usual routine business was disposed of, Dr. Ray W. Gannett, of Brooklyn, read a paper on "Resection of the Flexor Pedis Perforans Tendon for Infected Navicular Bursæ." The essayist had the data from a large number of cases operated upon which showed a very large and encouraging percentage of recoveries. Dr. Gannett advised early operation in such cases and was of the opinion that a large number of failures reported by others was due to the fact that the operation was delayed too long and that an open joint complicated the affection. This paper was freely discussed by Drs. Darke, Grenside, Gill and others.

Dr. J. L. Wilder, of Brooklyn, was next called and presented a case report of a "Horse Breaking Down in All Four Fetlocks Simultaneously." This proved to be a very interesting case and many of the members present related their experiences with such cases.

Dr. F. C. Grenside presented a paper on "Hitching in Horses,"* which was listened to with great interest. He recited the causes producing this annoying gait, especially in show

*Published elsewhere in this number.

horses, and also discussed the measures to be taken for its correction. The doctor contended that if the "hitching" was not produced by a pathological lesion, and if the animal did not "hitch" while being led to halter, the condition should not be considered an unsoundness. The discussion of Dr. Grenside's paper was general, Drs. Gill, Ellis, Mangan, Darke, Berns and others contributing their views on the subject.

A hearty vote of thanks was extended to Drs. Gannett, Wilder and Grenside for their contributions.

For the November meeting Dr. V. A. Moore, of the New York State Veterinary College, Ithaca, N. Y., will be with us and will present the story of the famous "Smoke Suit in the Deer Lodge Valley of Montana" from its pathological viewpoint.

Several case reports by members will also be presented, and an interesting meeting is assured.

W. REID BLAIR, *Secretary.*

YORK CO. (PA.) VETERINARY MEDICAL ASSOCIATION.

This association held a very successful meeting in the parlors of the National Hotel, York, Pa., on Tuesday, September 10. There were a large number of the veterinarians of the county present.

Dr. E. S. Bausticker read a paper on "Spasmodic Contractions of the Diaphragm in Horses," and also one on "A Complicated Case of Pneumonia and Glanders." Dr. M. H. Gladfelder, of Paradise, presented a paper on "Encephalitis." A general and valuable discussion followed the reading of these papers.

Next meeting at York, December 3, at 1 P. M.

E. S. BAUSTICKER, *Secretary.*

ILLINOIS STATE VETERINARY MEDICAL ASSOCIATION.

The annual meeting will occur at Chicago, Tuesday and Wednesday, December 3 and 4, the selection being made on account of the International Live Stock Exposition, when the veterinarians may take advantage of whatever special railroad rates may exist in consequence. President Barr extends a hearty invitation through the REVIEW for all graduate veterinarians to meet with them, assuring them that indications point to the best meeting ever held by the association.

NEWS AND ITEMS.

Dr. W. A. Boucher has removed from Fullerton, Cal., to Pasadena, Cal.

Principal H. T. Pease, of the Punjab Veterinary College, Lahore, India, has resigned to accept appointment as Inspector-General of the Civil Veterinary Department.

Dr. Fred. B. Hadley has resigned as inspector of the B. A. I. at St. Joseph, Mo., and has been appointed an instructor in the veterinary department of the Washington State College at Pullman.

M. Vacley Kotlar, veterinary surgeon, has been elected to the Austrian Chamber of Deputies, at Vienna, it being the first occasion upon which a veterinarian has been thus honored in Austria.

Dr. W. P. Barnes, Dennisport, Mass., in renewing his subscription to the Review, says: "I do not need to take account of stock to say I got the worth of the money invested in my subscription last year."

Dr. Elbrige C. Switzer, Springfield, Mass., was kicked in the head by a horse he was treating on October 9 and died the following day at the Springfield Hospital. He had sustained a fracture of the skull and did not regain consciousness.

F. R. Whipple, M. D. V. (McK., '02), has been appointed veterinarian in the West Virginia University, and has assumed full charge of the Veterinary Department, succeeding Dr. James A. Waugh, who has resumed active practice in Pittsburg, Pa.

Mrs. W. J. Guilfoil, wife of Dr. W. J. Guilfoil, of 1106 North Fifth street, Kansas City, Kansas, and son Jack, who have been visiting the doctor's parents and brothers in Auburn, New York, for the past two months, will leave November 1 for Union City, Ind., where they will make an extended visit with Mr. and Mrs. D. F. Kreider, the parents of Mrs. G.

Dr. L. Van Es, veterinarian of the Government Agricultural Experiment Station of North Dakota, is the author of Bulletin 77 on "Bovine Tuberculosis." It gives to stockmen, breeders and

dairymen the latest and most reliable information upon this disease in cattle, and it will undoubtedly do good service in spreading rational views that may in time be of great assistance in its eradication. It is well illustrated.

MAX SMALLFIELD, N. Y.—A. V. C. '08, of New York City, who had during his vacation acted as assistant to Dr. Charles E. Clayton, died in a New York hospital September 29. His case was diagnosed as typhoid fever, and he was treated for that disease until shortly before his death, when suspicious ulcerations began to break out over his body. A post-mortem failed to confirm the diagnosis of typhoid and a bacteriological examination revealed the cause of death as " farcy."

A VETERINARIAN IN THE BREACH.—Recently there was a tuberculosis exhibit in the City Hall of Lawrence, Mass. Rooms were furnished to illustrate the proper arrangements for tuberculous patients, and others to show how they should not be furnished. Models of sanitoria were on exhibition and many other educational features were provided. At the last moment the lecturer telegraphed that he could not reach Lawrence that evening. The hall was filled with people and a substitute had to be secured in a moment. Dr. John F. Winchester, the well-known veterinarian, was hurriedly sent for, and the local newspaper says that he acquitted himself so well that he was the recipient of compliments from all sides.

THE PHILADELPHIA WORK HORSE PARADE.—One of the most successful parades of work horses occurred in Philadelphia on October 16, under the auspices of the Pennsylvania Work Horse Parade Association, recently organized by the veterinarians of that city. The officers are: President, Dr. Leonard Pearson; First Vice-president, Dr. H. B. Cox; Second Vice-president, Dr. S. J. J. Harger; Treasurer, Dr. W. Horace Hoskins; Secretary, Dr. C. J. Marshall; Board of Governors, Drs. John W. Adams, H. B. Cox, S. J. J. Harger, W. Horace Hoskins, Henry Jarrett, C. J. Marshall and Leonard Pearson. The association has a long list of subscribers, members, patrons and patronesses, and will undoubtedly give an annual exhibit. This year it was a success from every point of view, there being over one thousand animals in line, and the streets were lined with throngs of enthusiastic spectators.

VETERINARY MEDICAL ASSOCIATION MEETINGS.

In the accompanying table the data given is reported by many Secretaries as being of great value to their Associations, and it is to be regretted that some neglect to inform us of the dates and places of their meetings.

Secretaries are earnestly requested to see that their organizations are properly included in the following list :

Name of Organization.	Date of Next Meeting.	Place of Meeting.	Name and Address Secretary.
American V. M. Ass'n	.....	.....	R. P. Lyman, Hartford, Ct.
Vet. Med. Ass'n of N. J.	Jan. 9, 1908.	Trenton	W. H. Lowe, Paterson.
Connecticut V. M. Ass'n	1st Tu. Feb.	Hartford	B. K. Dow, Willimantic.
New York S. V. M. Soc'y	Sept., 1908.	Utica	M. Hamilton, Delhi.
Schuylkill Valley V. M. A.	Dec. 18, 1907.	Reading	W. G. Huyett, Wernersville.
Passaic Co. V. M. Ass'n	Monthly.	Paterson, N.J.	H. K. Berry, Paterson, N. J.
Texas V. M. Ass'n	Call Exec. Com.	.....	E. L. Lewis, Waxahachie.
Massachusetts Vet. Ass'n	Monthly.	Boston	Wm. T. White, Newtonville.
Maine Vet. Med. Ass'n	.....	.....	R. E. Freeman, Dexter.
Central Canada V. Ass'n	.....	Ottawa	A. E. James, Ottawa.
Michigan State V. M. Ass'n	Feb. 4-5, 1908	Lansing	Judson Black, Richmond.
Alumni Ass'n, N. Y.-A. V. C	April, 1908.	141 W. 54th St.	T. F. Krey, N. Y. City.
Illinois State V. M. Ass'n	Dec. 3-4, 1908.	Chicago	N. I. Stringer, Paxton.
Wisconsin Soc. Vet. Grad.	.....	.....	S. Beattie, Madison.
Illinois V. M. and Surg. A.	.....	Decatur	C. M. Walton, Rantoul
Vet. Ass'n of Manitoba	Not stated.	Winnipeg.	F. Torrance, Winnipeg.
North Carolina V. M. Ass'n	July 2-3, 1908.	Raleigh	Adam Fisher, Charlotte.
Ontario Vet. Ass'n	.....	.....	C. H. Sweetapple, Toronto.
V. M. Ass'n, New York City	1st Wed., Oct.	141 W. 54th St.	W. Reid Blair, N. Y. City.
Ohio State V. M. Ass'n	Jan. 14-15, 1908.	Columbus.	W. H. Gribble, Wash'n C. H.
Western Penn. V. M. Ass'n	1st Wed. ea. mo.	Pittsburgh	F. Weitzell, Allegheny.
Missouri Vet. Med. Ass'n	.....	.....	F. F. Brown, Kansas City.
Genesee Valley V. M. Ass'n	January, 1908.	Rochester	J. H. Taylor, Henrietta, N.Y.
Iowa Veterinary Ass'n	.....	.....	H. C. Simpson, Denison, Ia.
Minnesota State V. M. Ass'n	2d Wk. Th. Jan.	St. Paul	C. A. Mack, Stillwater.
Pennsylvania State V. M. A.	March, 1908.	Philadelphia.	F.H. Schneider, Philadelphia.
Keystone V. M. Ass'n.	Monthly.	Philadelphia.	A. W. Ormiston, 102 Herman St., Germantown, Pa.
Colorado State V. M. Ass'n	.....	Denver	M. J. Woodliffe, Denver.
Missouri Valley V. Ass'n	Feb., 1908.	Kansas City.	B. F. Kaupp, Kansas City.
Rhode Island V. M. Ass'n	June and Dec.	Providence	T. E. Robinson, Westerly, R.I.
North Dakota V. M. Ass'n	.....	.....	C. H. Martin, Valley City.
California State V. M. Ass'n	Mch.Je.Sep.Dec	San Francisco	C.M.Haring, U. C., Berkeley.
Southern Auxiliary of California State V. M. Ass'n	Jan.Apl.Jy.Oct.	Los Angeles.	J. A. Edmons, Los Angeles.
South Dakota V. M. A.	.....	.....	E. L. Moore, Brookings.
Nebraska V. M. Ass'n	Oct. 16, 1907.	Omaha	Hans Jenson, Weeping Water.
Kansas State V. M. Ass'n	Jan. 2-3, 1908.	Manhattan	Hugh S. Maxwell, Salina.
Ass'n Médécale Veterinare Française "Laval"	1st and 3d Thur. of each month	Lec.Room, Laval Un'y, Mon.	J. P. A. Houde, Montreal.
Province of Quebec V. M. A.	.....	Mon. and Que.	Gustave Boyer, Rigand, P. Q.
Kentucky V. M. Ass'n	Nov. 19, 1907.	Not decided	D. A. Piatt, Lexington.
Washington State Col. V. M. A	Monthly.	Pullman, Wa.	Wm. D. Mason, Pullman.
Indiana Veterinary Association	An'l, Jan., '08.	Indianapolis.	E. M. Bronson, Indianapolis.
Louisiana State V. M. Ass'n	.....	.....	E. P. Flower, Baton Rouge.
Twin City V. M. Ass'n	2d Thu. ea. mo.	St.P.-Minneap	S. H. Ward, St. Paul, Minn.
Hamilton Co. (Ohio) V. A.	.....	.....	Louis P. Cook, Cincinnati.
Mississippi State V. M. Ass'n	Xmas week.	Auburn, Ala.	J. C. Robert, Agricultural Col.
Georgia State V. M. A.	.....	.....	C. L. Willoughby, Experiment
Soc. Vet. Alumni Univ. Penn.	June, 1908.	Philadelphia.	B.T.Woodward, Wash'n, D.C.
Virginia State V. M. Ass'n	.....	.....	S. C. Neff, Staunton.
Oklahoma V. M. Ass'n	.....	.....	W. H. Martin, El Reno.
Veterinary Practitioners' Club.	Monthly.	.....	A. F. Mount, Jersey City.
Vet. Ass'n Dist. of Columbia	Last W. ea. mo.	2116 14th St.	F. M. Ashbaugh, Wash., D.C.
B. A. I. Vet. In. A., Chicago	2d Fri. ea. mo.	Chicago	J. Madsen, Chicago, Ill.
Arkansas Veterinary Society	.....	.....	B. H. Merchant, Little Rock.
York Co. (Pa.) V. M. S.	Dec. 3, 1907.	York, Pa.	E. S. Bausticker, York.
Philippine V. M. A.	.....	.....	R. H. McMullen, Manila.
Montana State V. M. A.	Oct., 1908	Helena	
Veterinary Ass'n of Alberta	.....	.....	C. H. H. Sweetapple, Fort Saskatchewan, Alta., Can.

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"A NEW ANESTHETIC FOR VETERINARY USE—CHLOROFORM AND ETHER NO LONGER ESSENTIAL. In this issue, page 31, you will find a full page ad of the Abbott Alkaloidal Co., who, among other things, have produced for the medical profession a most wonderful analgesic anesthetic combination which has now been tested out successfully in human practice to the extent, as stated by them, of the consumption of over two million and a half doses without anything but the most satisfactory results being reported, and it is now presented to our branch of the profession for trial.

"This is an exceedingly important matter, for no one knows better than we do ourselves the difficulties encountered in anesthetizing our patients. Therefore I hope due trial will be made of this preparation. Dr. Abbott assures me that if findings are satisfactory (and he feels sure they will be) he will prepare a special sized tablet for use on horses. He states that he has had numerous favorable reports of its use on dogs, and recommends its trial in this department of our work first. He will send exhaustive literature deduced from its use in human practice, likewise samples on request."

THE NORWICH PHARMACAL CO., with salesrooms in New York and Chicago, and selling agents in London and several countries of South America, invite their many patrons to pay an inspection visit to their extensive plant at Norwich, N. Y. Almost entirely of brick, their various buildings have a floor space of nearly two acres, and are thoroughly equipped with the best modern machinery and apparatus for the manufacture of all forms of pharmaceutical products.

THE KANSAS CITY VETERINARY COLLEGE
Incorporated July 28th 189